Master's Thesis

Gamified Life:
Signs and Meanings

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Department of Urban and Environmental Engineering
(Convergence of Science and Arts)

Ulsan National Institute of Science and Technology

2021

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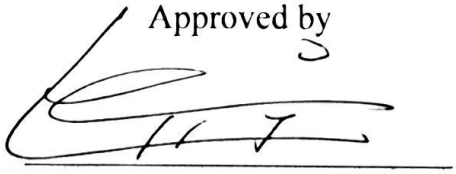
A thesis/dissertation submitted to
Ulsan National Institute of Science and Technology
in partial fulfillment of the
requirements for the degree of
Master of Science

Bogdan Albina

06.16.2021

Approved by



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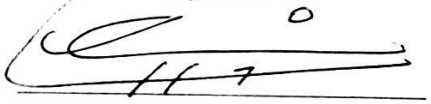

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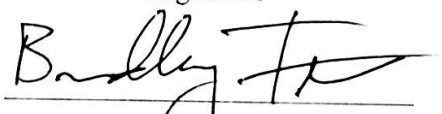

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ABSTRACT

The contemporary human society is more connected than ever, with almost two-thirds of the human population predicted to have access to the internet by 2023 [1]. A more interconnected world should mean more ideas, more creative and social capital that can be exploited to obtain solutions to a rising number of global issues such as climate change, increase of relative poverty rates, increase of economic inequality, etc. What is the factor that allows humans to connect on such an unprecedented level? Disregarding technology, I assume games and narratives to be the factor that allows people to come together and maintain this connection. From here on, I will present some reasons why games have been an ever more present part of human civilization and how they have been recognized as important parts of solving problems (and recently gained official recognition under the term "gamification").

The study will switch to semiotics theory and how this theory can explain a range of meanings assigned to games, especially in the contemporary world that most of the time associate games with video games. I would explain why gamification is different than games in both content and meaning, and I will propose a new concept of the *game as experience* that could help bridge the space between games and gamification while allowing gamification strategies to focus on the management and administrative advantages and allowing games to be restricted to their competitive nature.

To bridge the space between concept and reality, I will develop several prototypes that will act as a starting point in exploring philosophical issues such as education and alternative currencies, personal identity in virtual worlds, and social justice through the *game as experience* model.

The simplest *game as experience* model is based on educational games (also labeled as serious games), which are criticized for "losing their charm" once the users discover their limitations. Instead, the *game as experience* model will focus on creating an experience instead of a fixed set of rules. Because humans are natural players in relation to their environment and other human agents, it is in our own interest to take advantage of our strong intuitive decision-making mechanism and incorporate flexible rules instead of winning conditions. To do this, there is the necessity of experimenting with AI (artificial intelligence) and creating academic games. The commercial gaming industry is stuck in fixed business policies and is averse to risk incorporating a robust AI in commercial games, even though there exists a big connection between AI and games, in the sense that AI can make better games and games can improve the AI research. AI is one of the top growing technologies that pose multiple philosophical, social, and economic issues, to mention a few. While we can use games to study AI from a technical and algorithmic point of a view, I propose that the model of *game as experience* can be used to study the social issues of AI, both the issues of human-machine competition and human-machine cooperation in a safe medium, in order to understand the social impact of new technology, which grows at an accelerating pace in contrast to the understanding of the impact this new science has on the human being.

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GLOSSARY

2D – (computer graphics) two-dimensional

3D – (computer graphics) three- dimensinonal

AAA (also triple-A) – category of video game produces by a major publisher; it has very high development and marketing budgets

AI – artificial intelligence

AI Control Problem – an AI research and philosophy issue concerning the containment of a superintelligent AI to make sure it will help its creators and not harm them, intentionally or unintentionally by accomplishing tasks too literally

Facebook – biggest social networking service and social media platform, released in 2004

HUD – head-up display

MMO – massively multiplayer online (game)

MMORPG – massively multiplayer online role-playing game

Mod – modification, an alteration made by fans to the original digital product

MR – mixed reality

NPC – non-player character

OpenAI GPT-3 – Generative Pre-trained Transformer 3, language model that produces human-like text using deep learning algorithms. It was released in 2020 by the AI research laboratory OpenAI

Sandbox – refers to a video game of game mode that allows open-ended non-linear play

SNA – social network analysis

UBI – universal basic income

UGC – user-generated content

UI – user interface

VR – virtual reality

"There are at least two kinds of games: finite and infinite. A finite game is played for the purpose of winning, an infinite game for the purpose of continuing the play. Finite games are those instrumental activities - from sports to politics to wars - in which the participants obey rules, recognize boundaries and announce winners and losers. The infinite game - there is only one - includes any authentic interaction, from touching to culture, that changes rules, plays with boundaries and exists solely for the purpose of continuing the game."

Finite and Infinite Games – James P. Carse [2]

I. INTRODUCTION

1.1. Why play the game?

If we want to understand games, why don't we start by playing them? Indeed, for the vast part of human history, people engaged in playful activities in one form or another, activities that formed an important aspect of human cultures [3]. These playful activities led to the creation of so-called games, playful activities constricted by rules and aimed towards the accomplishment of a certain goal. If we look at games or acts of play (I will cover the difference in **Section 1.4**) as simulations of different aspects of the world in a safe space, we can add the "fun" component by allowing mistakes without severe punitive sanctions. What happens if we remove the safe space? Does the game turn into something else? What exactly? How do we define "fun"? Is "fun" a crucial component of games?

In the English language, many different concepts are linked to a game-like activity: politics (game of thrones, game of war), relationships (seduction game), skills (to have game), etc. In many different cultures, either the concept of game or the one of play has a similar diverse connotation.

It seems the game as in an enjoyable activity bounded by rules transcended its own definition, becoming something akin to life itself. The importance of games and game elements rose recently by implementing gamification techniques to deal with real-life problems as a way to increase work productivity, streamline management agenda [4], increase awareness on sustainable practices [5], develop alternative education systems [6] [7], etc. Is it too early to talk about life as a game?

While gamification is a recent concept (presumably it was coined for the first time by Nick Pelling in 2002 [8] but became mainstream after 2009), the impact that games had on human society is hugely underappreciated. If we remove some of the limitations of the definition of a game, we can see that society itself is an ongoing game with arbitrary rules, conventionally and artificially created. Instead of life itself on an individual level as a game (as popular media likes to call it [9] [10] [11]), we need to focus on games as human creations. What other human creation is more important and has a bigger impact than human society itself?

Even if we accept this hypothesis that human society is a game bounded by both artificial and natural rules, why does it matter? Why should we care about labeling society as a sort of game (albeit a very serious one)? By looking at conceptual things from a new perspective, we gain insight into alternative solutions to old problems. The schools of economics and the schools of sociology, even the Copenhagen interpretation of quantum mechanics [12] all offer alternative perspectives. Not one of them is completely correct and not one of them is completely wrong. Instead the most dominant is the one the

offers the solution to many problems we care about and the one we (this "we" can mean we as in everyone or we as in the experts in a certain field) collectively agreed upon as the most popular school. While including the Copenhagen interpretation about natural phenomena among the other schools was a bit of a stretch, my aim was to introduce here the concept of exploration of the natural world as human play.

1.2. From video games to social design

In talking about games, the first thing that surely comes to mind is video games, which have become a pervasive force in today's society and economic markets. The video game industry surpassed the movie-making industry in 2020 [13] due in part to the Covid-19 pandemic, but that only shows how important games have become for people everywhere. In more than one way, this inclination towards video games is due to both a socio-cultural factor but also a genetic predisposition towards play.

We will discuss video games, from a semiotic point of view, and talk about possible signs and meanings. Following this, we will divert our attention towards the gamification and gamified activities inspired by video game elements. This gamification is, in truth, more naturally attuned to our predisposition towards play, and only the coinage of the term is new, but the techniques have become only now widespread thanks to the digital revolution. Then, we will look at a new framework that puts games at the basis of society, and how games (in one form or another) dominate social interactions, scientific discoveries, and artistic creations. The digital revolution and especially the metamodern cyborg that has 24 hours access to information facilitated the reintroduction of games as the forefront of society and raise the awareness of the complex networked social interactions.

This cyclical process started with the appearance of play as a social bonding mechanism which gave rise to more complex social and artistic interactions [14] and, finally, coming full circle with the realization that human-created games are virtually everywhere. Being aware of their game-like aspect, societies can be redesigned with a focus more on cooperation and less on competition. This next focus on changing the fundamental aspect of games as more cooperative than competitive will mark the next revolution and it will happen along with the evolution and improvement in artificial intelligence (AI) technologies, similar to the way the rise of gamification happened along with the widespread adoption of the digital world. I would like to call this new model *"game as experience"* because while it contains many game elements or could be represented by games in any shape and form, the focus is not on normative rules and winning. Instead, the focus will fall on creating rules and self-experimentation.

What is the common link between SOMA [15] (a horror linear videogame), Minecraft [16] (a crafting-based open-world sandbox videogame), Duo Lingo [17] (a mobile and web language learning app), and an experimental implementation of OpenAI GPT-3 powered NPC (non-player character) in a VR game

[18] [19] that allows an NPC to freely converse with the player? Demonstrated by the fact that we have different terms to label each and every instance of this software, they appeal to different people for different reasons. But at their core, they are all proto-instances of *games as experience*, where one is willing to engage in a sort of gamified activity in order to practice exploration and learning as primary goals, and less to demonstrate superiority as the outcome of competition either with other human beings or AI agents. When the game elements are too engaging, the learning could become addicting, thus leading toward a detrimental effect; when the game elements are not sufficiently developed, the experience could become stale and boring before generating the beneficial effect. Therefore, designing good instances of *games as experience* is a balancing act that will not have an equal effect on all people. Designers of *games as experience* will have to make ethical decisions about the goal and meaning of their projects in a sustainable way, going against the norm that engagement is one of the key aspects of a good game design.

In order to understand this proposed framework, I will start by briefly present several case studies and their specific connections to the game studies or gamification theory (**Chapter III**), followed by the presentation of the actual framework elements. In this thesis, while I do differentiate between games and gamification practices, I argue that they are not so different as illustrated in the literature. Furthermore, the only distinction I clearly make is between the general category of games (and play) and *games as experience*, the proposed framework to be discussed in **Chapter IV**.

1.3. A brief introduction to (game) semiotics

Semiotics is the academic field concerned with the study of signs. By definition, a sign gives meaning to a signifier, be it representational meaning or arbitrary (conventional) meaning. Expanding on the theory of semiotics leads us to a theory of meaning as a function of human perception and signs. The corollary is that in the absence of human beings (or other conscious beings), the universe is devoid of meaning. We will talk about this lack of meaning later when we will compare games with other forms of media.

The most well-known semiotics theories are those of Saussure [20] and Peirce [21], but they are not the only ones. Modern semiotics is a mix of several semiotic theories, developed by Morris, Eco, Greimas, Barthes, Jakobson, Hjelmslev, just to name a few people from the semiotic field.

The central element of the semiotic theory is the notion of sign. The simplest definition accounts for a sign being something that replaces something else. Even in this simple definition, elements of a sign are well defined: a sign is composed of something and something else. That something is called a signifier and it represents what we actually perceive. A signifier is like a box. At first, we see the box, but not what's inside. Not unless we open it.

The something else is called a signified and this is the content of the sign. It is the association with the signifier. In the box example, what's inside the box represents the signified. A sign is the whole box together with its contents.

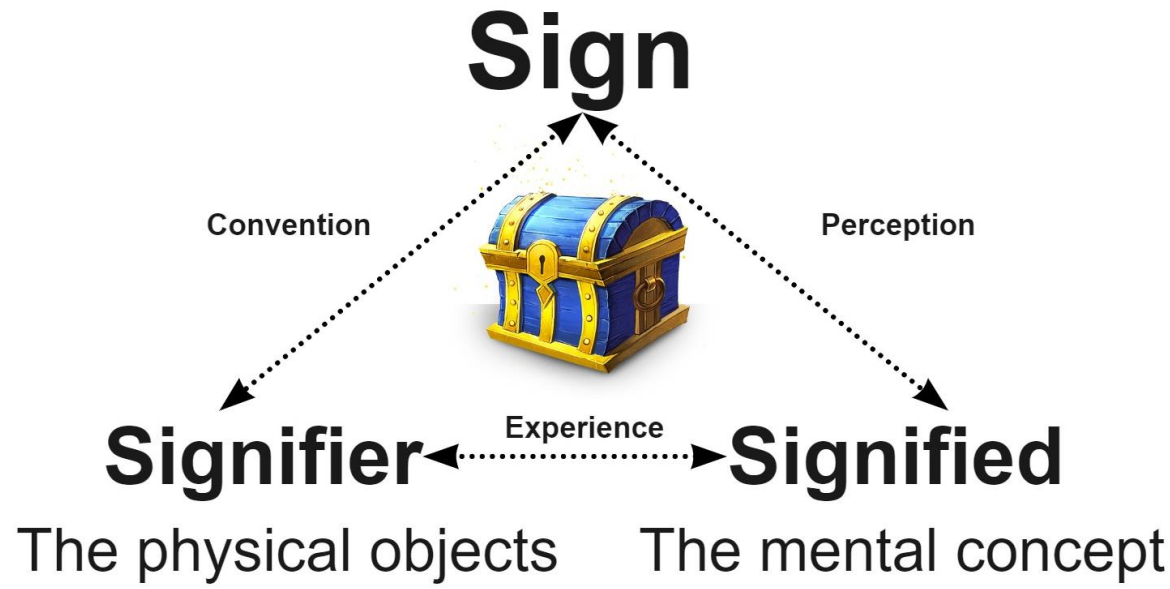

Figure 1. Diagram of the semiotic model

The example of a box wasn't chosen arbitrarily. In video games, the box (treasure chest) is a famous example of a sign. Contrary to our previous example, in video games, the actual contents of the box are not important in defining this sign. The signified is not represented by the actual content of the chest. Instead, the chest is a sign of discovery or reward. When we see a chest, we already expect to find a well-earned reward. Some modern games, such as Dark Souls [22], try to break this conventional meaning of treasure chests, and instead of rewarding, they punish the players trying to open the chest. The chest's meaning suddenly changes from reward to punishment, and in consequence, it alters the player's expected experience.

In semiotics, this association of two or more signifieds with the same signifier is called polysemy.

Some games use the well-established meaning of signs to surprise players with new meanings. But how exactly does a sign get its meaning? In the above example, the correlation between treasure chest and reward was arbitrary. It was established by convention. In daily life, this convention is strongly influenced by culture, the collection of signs used by a group of people for communication purposes. Sometimes, this leads to culture shock which happens when the signified parts of the social signs suddenly get new meanings compared to the previously known ones.

In Peirce's theory, there are 3 types of signs: icons, indexes, and symbols.

Icons are signs that try to resemble the signified. They are linked to the objects they represent by qualitative characteristics. For example, a photograph or a map. By their nature, video game environments are icons.

The indexes are indicating the signified by a real relation. For example, smoke is an index for fire (there is a direct physical relationship between smoke and fire), a knock on the door is indicating a person waiting outside. Indexes in games are all types of scores. For example, the level is an index of power or progress.

Finally, symbols are complex signs, defined by rules or social conventions. Languages are composed of words and words (strings of letters) are symbols for the objects or concepts they represent. Many signs in daily life are symbols: traffic lights, brand logos, customs and traditions.

Investigation of systems of signs leads us to observe 3 types of systems: symbolic, semi-symbolic, and semiotic. In this categorization, the three words have a different meaning than in the general theory of signs. Symbolic means there is only one type of relation in a specific context and one signifier is associated with one signified. One example would be the meaning of colors in different contexts (for traffic lights, green means go, and red means stop). Semi-symbolic relations refer to an opposition between signifieds if an opposition exists between signifiers. For example black and white for good and evil. Other systems can be considered semiotic, such as the language systems. In this classification, video games (and games, in general) fall under the semiotic category. Games as forms of communication and transfer of meanings have a complex network of signs and experience a fast change in meaning. While games are, at first look, associated with fun, human beings derive fun from a multitude of meanings. Games can be challenging (chess), serious (simulations), physical (Olympic games), educational (learn new concepts), emotional (story-based), philosophical (exploring abstract concepts), social (MMO sandbox), etc. To simply associate games with fun is to underestimate their widespread influence on culture and society.

In 1966 Julia Kristeva [23] defined intertextuality from a semiotic perspective. Texts could be analyzed by two axes, one axis that connects the author to the reader and another axis that connects the text to other texts. The text doesn't belong solely to the author, but its true meaning is created in relation to the readers and other texts. Gerard Genette [24] [25] offered a new term named transtextuality to deal with a more inclusive form of intertextuality. Transtextuality refers to several components that will not be mentioned in this thesis. Paratextaulity is one of these components; it is defined as all materials that accompany a text, including cover, promotional materials, prefaces, illustrations, etc. In this thesis, I will use paratextuality to refers to transmedia materials and interpretations in addition to the standard meaning. Therefore, in analyzing a video game as a text, the paratext would be represented by marketing

materials such as game trailers and gameplay or other marketing campaigns as well as novels and movies about the game's content.

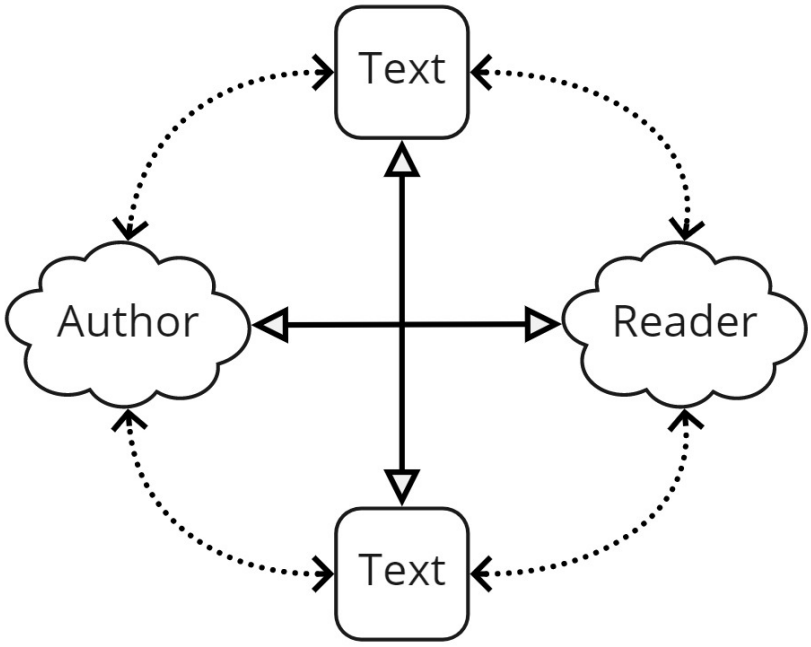

Figure 2. The two axes of intertextuality

It is said that a novel exists even if nobody can read it, but a game cannot exist if nobody is playing it. A game is not just a representational object, but the act of experiencing it. Especially in the case of computer games, they oppose the player's actions, thus influencing the player's response at every single moment. The substance of games lies not in their simple existence, but in the experience and interaction they provide. Because of this distinction, there are difficulties in developing a complete semiotic theory for games compared to semiotic investigation of other types of media, such as texts and films. While one can treat a novel in the same way as a game, accounting for the interaction between the reader and the text, the game's advantage lies in its external component that continuously changes in this interaction. The act of experiencing a novel makes certain that no two sessions of reading the same book will be the same. For sure, the act of reading is the same, but the inner experience is different. In games, both the outer and inner perspectives can change. What can be studied is the outer perspective. Thus, semiotic analysis of games accounts for both context and interactivity as a function of context.

Goals, risks, and paths are staple components of game design [26]. The paths arise through a combination of signs, with the simplest signifieds being danger, prohibition, allowance, and choice. The designer must create non-intrusive signifiers and a combination of signs that lead the player towards the desired meaning of the game. What happens when the designers try to convey a more abstract message, such as an ethical one? How will the signs change? What kind of system of signs will be

created? We must remember that signs appear in daily life, in specific cultural and social contexts of the players' lives. How will this context influence the meaning of signs in games? The final meaning of the game will not be created solely by the game designer, but the game will get its meaning from the interaction with players and from the interactions among players, be it online or offline.

1.4. What is a game?

For a word so pervasive in all cultures and all periods of time, so intrinsically linked with human life, it is surprising that this word doesn't have a well-thought definition that clearly states the boundaries between game and play and to what extent an object can be called a game. Once such a definition would be available, then all debates concerning the derivatives of games and game semiotics would be nullified. (See **Chapter II** on the meaning of games).

The Miriam Webster dictionary [27] defines a game as something related to either formal rules, a competing activity, or an activity undertaken for fun and pleasure. Something that incorporates all of the above would be considered a game, but also activities covering only one element would be considered a game, too. This definition is problematic as it doesn't define a game for our purposes but serves as a general guideline for the associated meanings of a game, the unwritten understanding every person gains in regards to games. This means the definition of games is fluid and changing from culture to culture, from time period to time period. In some ways, according to the same dictionary, game is synonymous to play, yet we all know playing is not engaging in a game. While play is the precondition to forming games, they are not the same. For starters, a game has some kinds of rules. We'll come to rules later, but first, we have to think of what have games and play in common? Is it fun? But then what is "fun"?

"Fun" is an even more difficult word to define, dictionaries providing circular definitions among fun, play, and enjoyment. Jesse Schell defines fun as pleasure with surprises in the book The Art of Game Design: A Book of Lenses [28]. It turns out surprise is an essential element of a good life. In various studies into behavioral studies on variable schedules of reinforcements [29], the motivation increased when the reward was delivered at randomized intervals instead of fixed intervals. The famous studies conducted by B.F. Skinner [30] observed that the mice would continue to work more when the reward was delivered at random intervals, compared to fixed intervals. The same effect can be seen in gambling, where randomized rewards at randomized times keep people engaged and create addiction.

Our brains are wired in a way that surprises produce intrinsic rewards, be it found in problem-solving, language, conversations, challenges. Surprises, even negative ones, are linked to the pleasure center of the brain [31].

To define play we have to start from fun and thus, from surprise. Play is also spontaneous and done for its own sake [32]. Nobody can order someone to play, because this kind of play would simply turn into routine. Conversely routine can be turned into play if it is done for its own sake. In one way, play is connected to curiosity and free exploration of the world. It is an attempt to answer the "what happens if?" questions. Play is a survival mechanism, in which an organism learns the surrounding environment. As a consequence, we can clearly identify play in all living things capable of exploring the world, more so in organisms with a more complex brain, such as mammals and birds. When we try to answer a question regarding our own curiosity we engage in play. Just shifting the focus from external rewards to curiosity engages the playful part of our brains.

The opposite of play is work, as Santayana says [32]. Work and play become equivalent to slavery and freedom. When one must work, one cannot play. When we engage in play or games, we do it by our own free will, and that is the critical aspect of play. The critics of gamification were right in trying to regulate the implementation of game elements. For an employee being forced to interact with a gamification system, there is no game, only another type of management system, another part of work. Then what is it that we call a game when the game is simply an activity based on play?

Jesse Schiller [28] came out with a list of things a game must adhere to to be labeled a game. It's a long list, including but not limited to a willingness to engage with the game, goals, conflict, rules, winning and losing, interaction, challenges, ability to create internal meaning, player engagement, games as formal systems, etc.

In the end, a game is an activity engaged for the purpose of solving a problem. This problem, compared to the exploration described by play is a specific problem bounded by specific conditions and specific requirements. We introduce goals and rules, as well as challenges and competition. If we build a problem-solving activity on top of the play element, we obtain something that we can call a game. One important note to mention here is that problem solving, even if playful, has to be undertaken as part of one's free will. Put another way, one should want to personally solve the problem and **not** be given a problem by a third party.

This is only one type of definition that games get in the academic literature.

From the stories told around the hearth fire, to chess and board games and card games, to the complex video games of today, all the games are introducing a new experience, the possibility to learn and try new things under the simulated frame of a game space. The purposes of games are complex, psychologists believing to strengthen social relations and provide a medium for learning creative skills and trying new solutions to self-imposed problems without suffering the real consequences of experiencing a drawback in real life [33].

I want to expand the definition of creating *games as experience* to include games where we are allowed to create our own problems to solve. There are not definitive conditions for winning or losing the game. In some ways, this type of definition is similar to the definition of a sandbox as a space for play, a collection of toys to engage and experiment with. In *games as experience* sometimes we give up partial control and the addicting element of fun in order to focus on the experience. The act of reading a novel is a game of experience, the novel was freely chosen, the reader engaging with the surprises discovered along the way but not having any control over how the story unfolds. A novel read as part of a curriculum is a different experience than reading for one's pleasure.

There are many metaphorical talks in the literature about life as a game, focusing on rules and methods and scores, but lacking the willingness to engage in life. Nobody chose to start the game of life, they are forced to play it, so why is life seen as a game and not as work? Mainly because the sign of life as work takes away our free will while life as a game empowers us and our choices. While not necessarily a game in a traditional sense, life can be seen as a *game of experience* when we define the problem, and in trying to solve it unexpected surprises appear on the way. A definite notion of *game as experience* is the capacity to make mistakes. One can win or lose the games due to mistakes but he or she must have the chance to play again. To learn the game, one must make mistakes. They are an integral part of the *game as experience*. *Games as experience* don't focus on the outcomes but on the method of accomplishing goals. In this, life becomes how you live life and not about the destination, that's why life as a whole cannot simply be defined as a game because nobody wins the game at the end of life.

On the other hand, understanding of any kind is a *game as experience*. How to implement it is an altogether different problem. When an educational game is created to showcase sociological or philosophical problems (or any problem defined as a need to understand), there will be some who will aim to win, because incorporating rules of a game in a *game as experience* shows a matter of misunderstanding the purpose of designing a game around the concept. A game is a problem-solving activity. Understanding is not a problem in itself. In the case of some systemic problems, we need to focus on understanding before attempting a solution because we try to avoid the situation when solving the problem gives rise to unintended consequences.

1.5. Fuzzy gamification strategies

One of the many definitions of gamification is the implementation of game elements to non-game activities in order to improve motivation or productivity [34]. The most notable areas where gamification has been successfully implemented (to varying degrees) are business and education [35].

Some think gamification is a branch of persuasive design and not all implementation of persuasive techniques are examples of gamification even if they use gamification elements [36]. On the contrary,

some think that gamification has turned into a simple management system and doesn't deserve its name, so they tried to distance themselves from gamification by utilizing terms such as playification and playful design [37].

Mathia Thibault's semiotic study [38] of the definition of gamification identified 3 possible meanings when one's talks about gamification. Gamification either refers to the game-like rules and design in management systems, or either to the incorporation of playful and fun elements in ordinary daily life activities (for example transforming chores in play) or finally to the metaphor relating to the social life activities, with the ultimate purpose of describing basically everything. Thibault settled on the definition of gamification as a combination of all three subdefinitions and concluded that the study was only the first attempt to clear confusion over the correct term.

In this thesis, I will use this definition, and will not make any difference between the playful elements and rule-based elements, but I will acknowledge that a system whose purpose is to build rules without regard to playful design is not gamification but a simple management system. Gamification should attempt at least to incorporate elements proven to elicit fun as a response, even though users may react in different ways to the gamified experience.

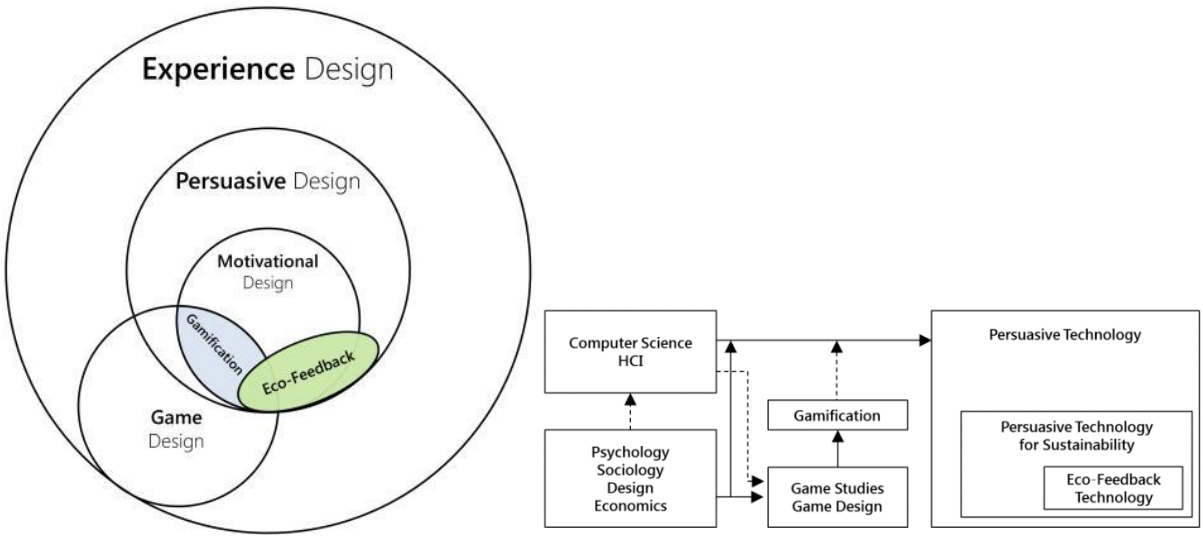

Figure 3. Gamification in the context of persuasive technology [35]

Traditionally, gamification used the following elements to elicit immersion (or fun): progression tracking (levels, points, score, experience), mission tracking (challenges, quests, missions, goals, to-do lists), status tracking (achievements, badges, trophies, etc), performance tracking (statistical data visualization, playful statistical visualization), social aspects (competition, cooperation, peer comparison), immersion aspects (avatars, characters, narrative, virtual worlds, role-play, etc.), rewards, etc. For a complete list of possible gamification elements see Koivisto [4].

Koivisto [4] claims that gamification is difficult to incorporate in practice because it contains three interconnected elements: the complexity of games, motivational design, and behavioral engineering. We simply do not know enough how to implement gamification correctly for everyone. A personalized gamification system that changes along with our preferences would keep us motivated and on track. Yet for this to be available, there needs to be a technological system capable of tracking personal data and implementing a system personalized for every one of us. This type of system would face ethical problems (privacy), as well as technological problems (data collection and storage, personal application design), and requires behavioral psychology breakthroughs (understanding motivation and behavioral change). The technological aspect can be easily solved by AI technology, which is rising rapidly. On the other hand, the ethical aspect will always be under scrutiny, as there is not one simple all-encompassing answer.

Aras Bozkurt [39] used SNA (Social Network Analysis) to discover gamification-related fields or at least, discover the keyword network in gamification papers (Figure 4). Education is one major area where gamification is predominantly encountered, but with unconvincing results [7].

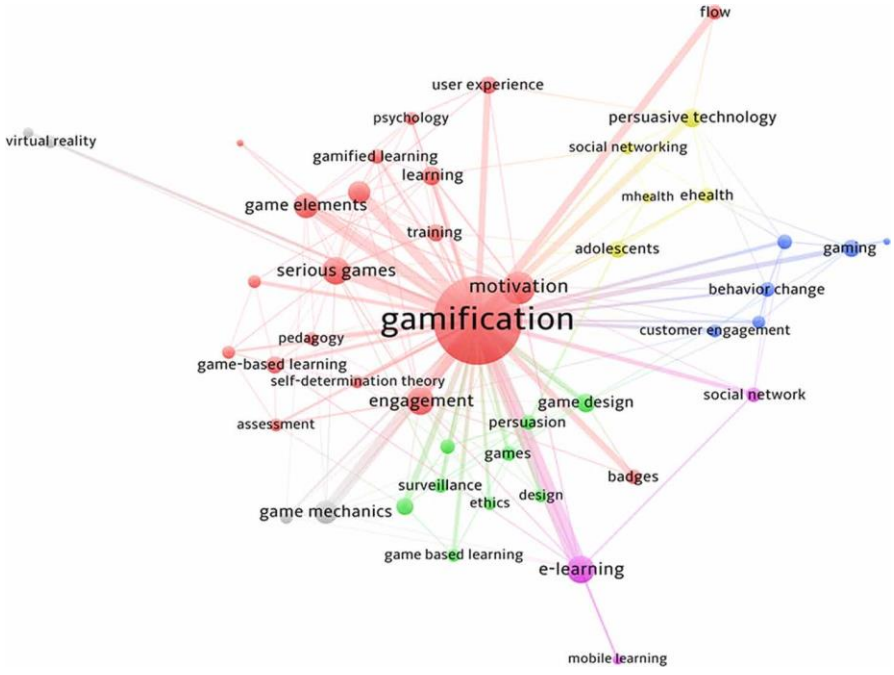

Figure 4. SNA for keywords in gamification papers [39]

What's more, there are a number of ethical problems with gamification [40]. Some gamification elements don't have the same impact on everyone, and some can have a negative effect. While the purpose of gamification systems is to motivate, some elements lead to demotivation, especially when used in a social manner by comparing scores with peers. This raises other ethical concerns, such as voluntary participation, personal data privacy, exploitative practices, cyberbullying, manipulation,

shifting the intention from intrinsic values to external rewards (for example, is doing an act of kindness for the wrong reasons desirable or not?).

Despite the rising interest in gamification, both in business and academic research, gamification is a long way from being fully understood. Its implementation without further study could lead (if it hasn't already) to a loss of respect and reputation for this practice, but also to questionable results and practices.

Gamification comes from a long line in psychological research, namely behavioral science, combined with the trend of digital games and turned into a buzzword – "gamification". Despite the media hype and bad practices, gamification is a worthy field in need of more empirical data and theoretical investigations.

In my view, the purpose of gamification is to facilitate the creation of the flow state, described by Csikszentmihalyi, and inspire engagement in (sustainable) activities for their own sake. The creator of this concept, Mihaly Csikszentmihalyi defines flow as the "state of being completely involved in an activity for its own sake. The ego falls away. Time flies. Every action, movement, and thought follows inevitably from the previous one." [41] We as irrational humans have problems in delaying the reward, we prefer a smaller instant reward instead of a bigger long-term reward. Gamification's role is to unite the two human drives (the I-want-it-now and I-should-prepare-for-the-future) by providing a short-term reward in the digital reality, which will act as motivation for the long-term goal. Seemingly a small feat, this delayed gratification is one of the important aspects of human ingenuity, that is nowadays stolen by the deficit of attention. Human attention is decreasing [42] with potentially bad outcomes down the road.

Flow is not only important to create engaging experiences but also it can be thought of as a tool to help willpower when properly done. Because willpower is a depleting resource [43], the state of flow keeps the reserves of willpower intact while one's works on a difficult problem. The real issue is how to get a person in a state of flow when the problem proves to be an unlikeable, dreaded task. The notion of gamification tries to solve this problem, either for challenging tasks or for dull, monotonous tasks.

If we can use gamification to stop the loss of attention, even if we don't use the same terminology and semantics, then this would prove to be a big accomplishment.

1.6. Games - designing systems

One of the first theories of society as a game was developed by Erving Goffman [44]. To be more precise, he described society as a play, not an activity for its own sake, but a theater play, where everyone knows their roles and acts accordingly, depending on the environment. One can have multiple roles, changing from situation to situation. Issues of social strain appear when roles conflict with each other

(ex. role as a mother vs role as an employee). There are other social constructs that resemble collective games in our society: organized religions, collective gatherings, traditions, rituals, nations, to name a few. They are organized by rules, roles, and a collective narrative. The only thing missing from these game-like colossal structures is fun. But "fun" is a subjectively defined concept. When one plays a game, this individual is experiencing the game but is not part of the game.

This concept is expressed by Huizinga through the magic circle [45]. The magic circle defines a space where the artificially created rules of the game world replace the normal rules of reality, and the two cannot coexist. In the case of society, one is part of the game, and the agent that can experience fun is someone outside the game, someone experiencing the game. Nevertheless, "fun" can be experienced by someone inside the game if this person understands the game. A game has a structure and actions have reactions. As long as a society is stable (stable game) and one can reasonable predict the consequences of his actions, one can have fun. Of course, as I mentioned in **section 1.4**, fun is synonymous with surprises, but a system that doesn't respect any rules can lead to helplessness, which is the opposite of feeling in control [46]. We play games because we like to feel in control, despite the occasional surprise. The rules of the game, including the randomized effects, are more predictable than life. A surprise offered at timely intervals is better than a surprise offered at unpredictable times with an unpredictable certainty. Fun is synonymous with Csikszentmihalyi's Flow, a right amount of challenge combined with the right amount of progress, that represents intrinsic reward.

Human civilization started with games and stories [47], then games became more complex the more complex society became. The games a society plays tell about the society itself. What is necessary to create a AAA video game, the most iconic example of a game of our times? Infrastructure, electricity, computers, software, writers, artists, songwriters, programmers, business, and marketing divisions in several teams. What is needed to experience the game? The right device with access to electricity and internet. What allows us to create and experience these types of games is the level of complexity of our society. By creating games, we replicate society.

A game (including gamification) is a system designed by humans for human experience. Nowadays even "fun" is a blurred term. Interactive novels and cooperative improvisational theatre with the AI [48], serious games [49], games where one pretends is an NPC, a skill consisting of acting less human and more like a robot [50], there are many new ways in which one can have fun. We can wonder if a game is only supposed to be fun? Or is it a new experience? Even textbooks are designed to be fun as seen in the example of the textbook for an introduction to sociology "You may ask yourself" by Dalton Conley [51], which implements a digital portal with transmedia elements such as animated chapter summaries and online quizzes as well as others additional resources that could not be delivered via text. A trivial example that many people encounter at early ages is reading a book as an assignment, which proves to

not be as fun compared to freely choosing that said book. The same case can be made for games. Forcing someone to play a game as an assignment may cancel the effect a game has when it's a voluntary experience. Games are fun because they are not mandatory.

Therefore, I will acknowledge the *game as experience* to stand for all media that allow any degree of interactivity with the purpose of experiencing situations outside of one's reach at the moment. Thus, driving a car on the street is not a game, but driving a car in a virtual world is a game, as well as driving a car that has a HUD which tracks your progress and rewards you for sustainable driving (Figure 5).

Figure 5. The Nissan Leaf Carwings system and eco-driving rankings [36]

II. ON MEANING OF VIDEO GAMES

In talking about games, I don't want to limit myself to the most representative type present in today's culture – video games, but they deserve a special discussion due to their power of persuasion. While gambling exists in its own separate category as an addictive game, never in our history we had to deal with such a meaning-creating mechanism similar to video games.

With the rise of consumers' smartphones and portable devices, games have become a part of anyone's daily life, the most predominant form being presented as a video displayed on a screen, hence the name video games. No longer games are reserved for a special category of people with time and skills to play games, that social category originally called gamers. Anyone with a phone can engage in playing a game with durations starting from minutes to hours. Even if one is against all forms of gaming, he must have heard about the importance of games in society, especially for children and teenagers.

Games have always been an important part of developing the personality of young human beings but we didn't give them much attention until the spread of video games [52]. Video games usually get attention due to their addictive nature [53]. Some people are against their addictive nature, while others are actively incorporating more addictive mechanisms. No matter personal opinion, video games deserve their special discussion due to their capacity to create strong meanings in individuals as well as in societies.

2.1. On meanings

Meaning is regarded differently by academic field but also, by the level of perspective, from individual to expert and from an individual to society and international scene.

One way of seeing the meaning of objects is to incorporate semiotic theory. Thus, meaning is what is ascribed to the sign either by convention (symbolic meaning), by reference (indexic meaning), or by representation (iconic meaning). Meaning not only arise from the relation between sign and signifier but it is precisely this relation. This type of meaning tries to answer the question "what does it mean?". What is the relation between object and concept? This meaning can be defined by a collective of people and becomes synonymous with the importance of an object, or by an individual as personal meaning.

On the opposite spectrum lies the cosmic meaning of objects, usually used in conjunction with the meaning of human lives [54]. This type of meaning is mostly irrelevant even when considering big questions like the aforementioned meaning.

Video games, as well as other media or artistic works, don't necessarily have a deeper meaning, but their meaning is given by the social activity surrounded them. Looking at them as symbols and analyzing them from the interpretative theory and comparative literature, can reveal meanings

concealed in the narrative, either straightforward narrative or symbolic narrative (given by the gameplay and exploration). We can look for hidden meanings (as explored by the interpretative studies) or we can see the obvious meaning (the apparent relation between A and B)

Let's take the example of an artwork produced by an artist. Is the meaning given by the artist or by the audience? Is it correct to address the question of meaning to the author or it should be left to society? In the case of video games, Jones [55] argues that meaning should be part of the complex social network surrounding modern video games. We will expand on this with a more specific example. An artist draws a black circle on a white canvas as a parody of modern art. Everyone could have done that, but it is only considered art because it was created by that specific artist at the specific time, reviewed and criticized by art critics during an exhibition. The artist created a conceptual meaning together with a suggestive and appropriate title. The audience and some of the art critics interpreted his work as something else. Part of modern abstract art, they decided it represents, for example, the human condition in the 21st century. Their decision spreads and the artwork comes to be recognized for its deep meaning about the human condition. Are there real and false meanings? No, says Jones [55]. Once the art is shared with the public its meaning expands. Both the artist and the audience are creators of meanings and the meaning given by the social interaction is considered stronger, if not the only relevant meaning.

Meanings are conventional, arising from social interaction.

2.2. Cybernetic sign production

The link that allows games, especially video games, to be studied by literary and semiotics studies is conferred by Aarseth's Cybertext [56] that defined "ergodic" literature. Ergodic literature requires a non-trivial effort, more than the mental effort related to reading. It covers the creation of cybertext as well as the mental effort required to engage with interactive or non-linear media.

The main area that studies games as a form of expression is called ludology but ludology seemingly didn't deal with practical matters that the area of game studies tries to deal with. One interesting way to look at games, particularly from the perspective of creating new signs, is to look at how games are used in modern society. Is a game more than just fun? Is a game an effort to change ideological transactions? Can simple video games encourage certain behaviors with widespread social ramifications? For example, the U.S. military is funding the creation of video games that serve as a recruitment portal for young people to join the army [57].

Video games are becoming a pervasive element of modern culture and should not be classified only as a "fun element" or as "distractions". U.S. Military saw an opportunity and took it. While there are still discussions about the ethical implications of the movement, I argue there are many other opportunities

regarding the use of video games in creating new meanings, but we should tread carefully. Once video games lose their main function of fun escapism, they can as well lose their status as games.

2.3. Paratextuality in video game studies

As mentioned before, intertextuality refers to how texts are incorporating other texts. Intertextuality is a part of many human creations, from art to science. An extension of intertextuality is the paratext, as defined in **Section 1.3**. It's an important element in the study of the social meanings of games because games, especially video games, tend to create social forums of discussion, as well as forums of creations that facilitate user-generated content (UGC).

Mods (from modifications) are creations by players that modify aspects of the original games. Recently some mods are so big they can be seen as a game in themselves (see Enderal [58], a Skyrim mod that adopts new meanings, both narratively and conceptually. It was made possible by several parties: the original developer who allowed modding capabilities, fans of the game engine, and fans dissatisfied with the original game who sought to incorporate their own meanings on top of what the original developer allowed).

When we're talking of social meaning, we don't necessarily refer only to modifications brought in by the public, but also by the expanded universe which can include other types of media as well as communities that came together only due to the existence of that game. There are instances of many players that continue to stay together even after the closure of MMO servers and engage in so-called "inter-game immigration between MMOs" [59]. While these instances appear rare, the people involved in such a personal project had encounter life experiences that could not happen in the absence of that game.

So far, we looked at games from the paratextual point of view, and that doesn't make a game so much different than a text. The difference is that a game is intrinsically a social phenomenon even since its inception. In recent years we based our single-player games on the interaction between the player and AI, which can still be regarded as social interaction, albeit one that doesn't involve another human, but an agent. Few games are in truth meant to be played truly alone (one example would be Solitare).

It is not game designers but players who give meaning to games by playing them, talking about them, modifying them, replaying, and forming communities around them.

III. STUDY CASES

3.1. Life with Ggool – a video game response to an alternative currency

Figure 6. Life with Ggool - main menu

3.1.1. Introduction

This project aims to address the problem of engagement existent in the general public concerning matters of social and environmental interest. To this end, I proposed to develop a simple video game to raise awareness about the Science Walden principles concerned with universal basic income (UBI) and a new alternative currency (꿀, eng. Ggool).

Not only gamification and games have been involved in education, marketing, and sustainability studies as illustrated in **Section 1.5**, but they have been employed in cultural and anthropological studies [60], as well as in redefining scientific thinking [61]. This small project covered the area in-between education and economy based on social values. The project is a simulation of a new reality with an alternative currency that will be discussed in the following section, the philosophy of fSM (feces Standard Money).

My short-term goal was to raise awareness of some economic issues and what solutions were developed at UNIST, Science Walden, and integrated into a network that spans over South Korea and even takes roots in other communities (such as Auroville - https://www.auroville.org/).

My expectations were a raise of interest in the subject matter. While the preliminary test failed to engage the audience higher than that of the game itself and the responses were not particularly favorable in the proposed survey, enthusiastic responses were present during the gameplay sessions, generally, people praising the idea but not the execution.

3.1.2. The philosophy of fSM

The first result of this project was a video game named *"Life with Ggool"*, based on the proposed currency of Science Walden, called Ggool, described in detail by Lee et al. [62] and Science Walden website [63]. While efforts were made to be as close as possible to the real meaning and value of the currency, some things were changed for an improved digital experience.

The main idea of fSM is giving value to waste and transforming them into a form of energy and at the same time creating a currency based around this standard. Another area of interest is how to use this currency as Universal Basic Income (UBI) and encourage social and continuous natural economical flow. For this matter, an arbitrary portion of every type of income will be distributed to one's peers, while at the end of the day, another arbitrary percentage would be deducted from the total amount and returned back to nature, to encourage the daily purchase of basic needs and prevent mindless accumulation, which would be damaging to the natural economic flow.

The unit of this alternative currency is called Ggool, with the symbol G.

The current numbers are as follows: 10 G every day represents the daily UBI; 30% of any type of income is to be shared with one's peers, and 7% daily demurrage (which will limit the maximum amount received from UBI to the amount equivalent to one month). Based on these economic rules, the game mechanics have been implemented. The current iteration of basic income is not conditional but initially, the daily income was conditioned by showing active voluntary participation in the system, which was done by using Ggool to pay for a meal, a virtual meal in the Science Walden first gamified app for classroom use.

If there was already a gamified version of the fSM and UBI mechanics, one question that arises is why develop a full-fledged game based on the Ggool UBI-related idea?

While not a novel way to look at games, in the modern days of video games and computer-generated graphics it's easy to overlook the most crucial aspect of what it means to create a game. Creating or designing any kind of game is in itself, creating an experience, be it a simple or a very complex one. At its core, a game offers a new experience, a new way to look at the world, or to experience something that is (yet) not available to the player/user in other formats.

Another important component of games concerning the understanding of human behavior, when faced with a new element, is the fast feedback in measuring success and failure and reinforcing behaviors through in-game rewards and punishments. Compared to gamification solutions, which seek long-term engagement to an already popular and usable real-life system, a (video) game can make people curious about the "what if" scenarios and implicitly try to understand a new concept by experiencing it, and in the process, test its boundaries.

In the case of *Life with Ggool*, the new concept is the alternative currency of Ggool and how to use it in daily life. The main motivation behind the game is to make people experiment with what is possible with the new currency and how it compares with the current currency used everywhere. Also, because the currency is interlinked with UBI, the first phase of the game was focused on using only the available income gained daily. Because UBI is defined as the income necessary to cover the basic needs, the goal of *Life with Ggool* is survival in a pre-established community, with access to services such as food, clothing, accommodation, recreational and social activities.

Sometimes, the line between gamifying an activity and creating an educational game is blurry, therefore I would like to call this project a proto-instance of the *game as experience*.

Therefore, the choice to develop a *game as experience* and not a gamification app is based on the need for quick feedback and promotional value. In a real-world system, the delay between action (or inaction) and contingency is too large for a human agent to fully grasp its implications. Playing *Life with Ggool* is a way to shorter this delay and to illustrate the steps one has to take for a world where Ggool is readily available and useable for almost all human needs. On top of that, the engaging game can create promotional value for the fSM platform and other fSM related activities, either through the curiosity generated by the game concepts or by continuous online integration with access to information about upcoming events.

3.1.3. Creating Life with Ggool

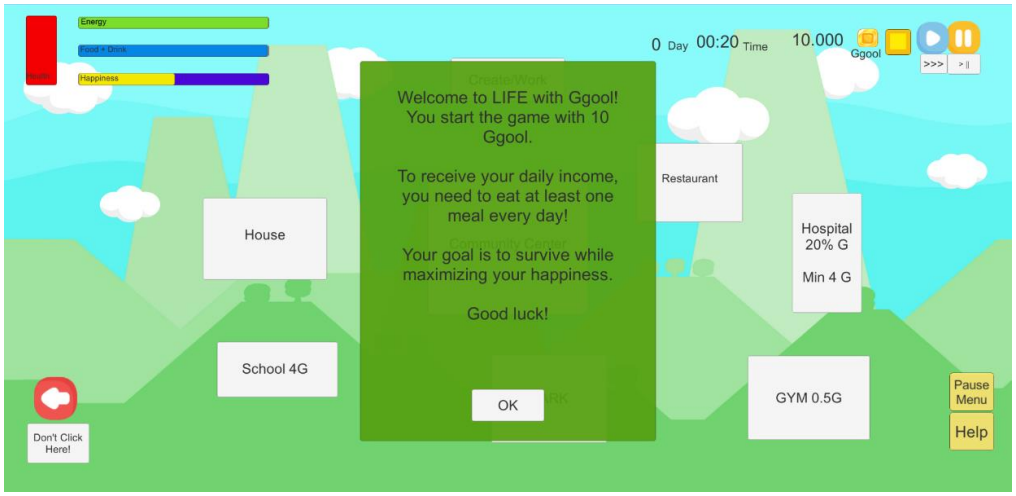

Figure 7. Life with Ggool - the game

The mechanics

As mentioned in the previous part, the mechanics of the game design would revolve around the currency called Ggool with everything that it represents (circular shared-based UBI). What follows is a simple list of rules for the game design in its final form:

- The player will receive 10 G every day as UBI
- 30% of any type of income will be shared among the player's peers
- 7% daily income reduction
- The players get the income for the next day only if they had at least one meal
- Participation in an educational activity (limited to one per day) will be rewarded with an additional 10 G subjected to all the previous rules.
- The goal of the game is survival for as long as possible.

After tinkering with different ideas, because having the minimum necessary for living seems to be the very goal of UBI, I've decided to mold the game under the conditions of a soft survival game/life simulator. To do these, I've added 4 more player variables, health, energy, hunger, and happiness.

The motivation for each of them in order is to have a way to measure progress (health), have a limited number of actions per day (energy), measure basic needs (hunger), and show the social aspect of Ggool/UBI that is not all about work (happiness, respectively).

These variables took shape of meters that deplete with time, for energy, hunger, and happiness. Health starts depleting with time when one of the previous meters reaches a 5% threshold, and it depletes 2 times faster when two or all other meters are empty.

A frame is a single image in the series of images presented to the screen rapidly to give the illusion of motion in a game. The game engine used frames to keep in-game time stable. Thus, the way the meters work is based on the concept of frame instead of per second.

Health starts at 100 and it depletes at the rate of 1/3 per frame if the conditions are met.

Energy starts at 100 and it depletes at the rate of 1/3 per frame. Also, every click depletes the Energy meter by 3.

The hunger meter is actually a satiation meter because it decreases, and it acts as the opposite of hunger but for the sake of simplicity I will continue to name it hunger. The Hunger starts at 100 and it depletes at the rate of 1/2 per frame.

The Happiness starts at 100 and it depletes at the rate of 1/5 per frame. Other actions cause Happiness to deplete, as well. (see **Appendix A**)

To regain Health, the player has to use the Hospital. The mechanics of the hospital initially lead to the development of a risk-free game because of a design that tried to go outside of the game world. One question arose when developing the game around the concept of UBI. If everyone has their basic needs

covered, isn't healthcare one of them? So instead of charging a fixed fee for a hospital visit (to regain full health), I designed it to be a percentage (10% of total income). What happened was that everyone (even players with 0 G) had access to continuous health, essentially removing any risk in playing the game once this mechanic would be discovered. If there is no risk in playing the game, there is also no challenge and where is no challenge, there is only boredom, thus any goal of the game would be lost at this stage. To counteract this issue while keeping true to my idea of healthcare in a world with Ggool, the hospital demanded a percentage (20%) but also a minimum pay (4 G). If the minimum amount is missing, the player will still be able to recover all health but will incur a massive drop in happiness, which will again start depleting his health. (Therefore, the smart thing to do is to save some Ggool for emergencies.)

To regain Energy the player has to sleep in their house and the energy will regain at a rate of 2/3 per frame. The player starts with a house (shelter) and bed readily available. Other alternatives include consuming caffeinated drinks, but they come at a cost (see **Appendix A**).

To prevent hunger, the player has to eat at the restaurant, having a choice between a simple meal (it fulfills the hunger) and a more expensive meal (that fulfills less hunger and offers some additional happiness). (see **Appendix A**)

To regain Happiness, the player has to perform recreational/social activities that provide a chance to meet new people which will be added to the Contacts List. The number of Contacts is important because it increases the chance for more Ggool received at the end of the day from peers. (see **Appendix A**)

The development cycle

The first stage of the project was originally supposed to be a text-based game, rich in choices and stories but to create an engaging experience in today's visual world seemed like a daunting task, especially for something abstract such as a currency.

Once the design was changed, there was a need to change the development medium. Unity seemed the most accessible at the time to develop a full 2D or 3D game. To develop this game, Unity version 2019.2.7f2 was used. Unity is a game engine, supporting multiple platforms that can be used to create two-dimensional or three-dimensional video games, virtual reality, augmented reality, simulators, and other experiences. It has also found applications outside of the video game industry, in engineering, automotive, architecture.

The second change occurred when there was the need to switch to prototyping and replace all the free assets (graphics) with simple UI (user interface) buttons because of 1) difficulty implementing coding mechanics to graphics instead of buttons and 2) the design was not fixed and mechanics still changed depending on what the game engine allowed.

The Artwork

For the visuals, *Life with Ggool* was developed using a free asset pack from Unity Asset Store for the background and a few graphical illustrations used as button placeholders (Free Platform Game Assets from Bayat Games Unity Asset Store). Everything else is created inside the Unity engine from simple geometric shapes.

For the background music, I also selected a free music track provided by the Vertex Studio on Unity Asset Store (track number 4).

Secrets

Playing the game in the current phase, one can discover a button that works almost as a taunt, "Don't click here!". There is a tradition in video games to hide things or create hard-to-find places or objects that don't belong in that established game world. The tradition started as a way to break the fourth wall and present a surprise to the player. In modern video games, sometimes this is not only used just for fun but also for practical purposes, for example, in the case of cheating or illegally acquiring and playing a copy of the game, the game is presenting an alternative course of action.

In *Life with Ggool*, when the players press this button, they will incur a penalty to all his stats (health, energy, hunger, happiness) and they will see a message "You were trying to leave the simulation", as a reference to the very nature of the game.

The secret was not added intentionally. During the development and testing, there was the need to check for the end of the game and how the meters would behave when they go low enough. To simply wait for them to deplete was a time-consuming task, so a button to simulate the waiting was created. In the end, because the project is still a prototype, I chose to keep it and repurpose it as a "secret", to check if players would test everything available on the screen if there is a lack of any additional indications.

3.1.4. Presentation

My aim with this project was to explore different possible directions within the Convergence of Science and Art (CSA) program and Science Walden. During the semester, a CSA graduation exposition was organized, a good opportunity to both showcase and test my idea.

The first method of studying the educational impact of the game without me directly interfering with the opinions of the players was a survey. The survey questions are presented in **Appendix B**.

A CSA Graduate Exhibition was organized in November 2020 from 4th to 9th, *Life with Ggool* being part of the Prologue exhibited in the lobby of the building 110, UNIST campus. The Prologue acted both as a promotional tool before the opening and the introductory part, during the exhibition period.

The main body of the exhibition was held in the Science Cabin, where the Prologue was moved during the last few days. (See **Appendix C** for the Exhibition Prologue).

The survey was designed to be mostly unobtrusive. People had access to a good working version of the game on a personal computer in the lobby of building 110. On the desk, there were also a few promotional materials related to the concept of Ggool and a few QR codes that a player could access to fill up a survey to improve the development of the game.

To solve issues with acquiring data related to game activities, some steps could be taken in the future. To make the survey fun, it can be incorporated into the game. There may be less friction in answering if the questions are presented as part of the game. Incentives can be offered for a large definitive study. For a better survey design, the questions must be specific and present a multiple or single option.

In designing the survey, I used questions usually asked during playtesting, where players agree to test the game before launch in return for answering some questions about game design and other elements crucial prior to release. [28].

Fortunately, I was able to be present during a few game sessions and from the spoken interaction I gained a few insights into what the game did right and what did wrong. First of all, the majority appreciated the idea of a game (fast-paced and challenging) to express abstract ideas. Unfortunately, the opinions were divided on the issue if this was the right type of game to showcase Ggool. While people had fun for a few minutes, they talked of wanting to have more things to do. Another common request was “more flashy stuff on-screen”. Another way of saying it, every click or touch should give meaningful visual feedback to the player. The fault for this inclination over an overly visual aspect may be attributed to the rise of mobile casual games that have a very basic core but rely on plenty of visual animation, along with (illusory) endless things to do.

3.1.5. Perspectives

Games are the perfect medium for learning. They engage the primal senses and both the problem-solving and the creativity centers of the brain. They bring out cooperative or competitive instincts while allowing us to make mistakes without much consequence in the real world.

A game operates on a feedback loop, with the player at the center of every decision. fSM is a new system based on multiple layers of decisions and the best way to represent a complex network of decisions is, I believe, through a game. At the moment, *“Life with Ggool”* is only focusing on the mechanics of the proposed alternative currency, Ggool, without dealing with other concepts.

My idea for the game was creating the *"experience"* of using an alternative currency, making players/users asking themselves questions such as "*Why use Ggool? What is UBI in action? What else is possible in this kind of world?"*

As a prototype, *Life with Ggool* encompasses the basic mechanics but it's not a full-fledged economy. To create a flowing economy, the game has to be transformed into an online multiplayer game, where everyone sets their own prices and decides from who and what they buy, adding a real human element to the simulated economy.

My suggestion is a complete rehaul of the game. Because of the existing problems in measuring time using frames and the urgency of the gameplay, some people don't have time to fully comprehend they are using a currency that behaves differently than money. Instead of continuing with a game in "real-time", a different game that incorporates a limited number of available actions per day (tied to the energy stat) and offers a turned-based experience will allow people to take their time while playing, reading about Ggool and making more informed decision. Instead of rewarding fast clicking, a good strategy would be encouraged. Therefore, the player will decide when it's time to start a new day and receive their daily income with a click of a button, but what they do during the day will be limited by the amount of Energy available. This gives complete control over the speed of the game to the player, as the feedback regarding time was complicated; generally, people tend to agree that in the beginning, too many things happened at once, while later in the game, nothing new happened.

Another important point would be multiple progression. To keep engagement, a progression system must be implemented. More than in real life, games that appeal to the emotion of getting better and better are shown to be more engaging.

3.2. Virtual personal identity in the digital world: a game-focused approach

The aim of the second project was to create a narrative about personal identity, alternative identity, and artificial intelligence and to explore the possible relations between different mediums that strongly links to one philosophical concept, the concept of "who am I?" and what it implies to be a person.

To do this, I analyzed a couple of fictional narratives that deal with the subject matter, narratives that are prevalent in all types of media (literary, visual, interactive). Following this, I created a conceptual virtual reality selector called *Realms of Playcraft*. It is neither a game neither an instance of gamification, but something in-between. It acts as an interactive matter that studies the way every individual could potentially perceive himself or herself in the digital realm. It can act as an awareness signal about how the digital identity reveals facts about the personal identity formed not only by our own choices but by interaction with the surrounding geo-socio-economic environment.

3.2.1. A story of many choices

It is only natural to start talking about personal identity starting from "who I am" and from the body that we have. On our identity documents, our identity consists of our name, the date of birth, our gender, blood type, and maybe other characteristics of the body. Yet, it is difficult for us to think we exist only as a body.

The earlier philosophical debates argued about the existence of the soul and the duality of matter. We are more than the existence of our bodies. Even if the hypothesis of the existence of the soul can be dropped by explaining any behavior related to the soul through other more reasonable concepts, we still think about the existence of 2 different matters: our body and our mind. We are both body and mind, but we would like to think we are more of a mind than a body. We like to see the body as a vessel for the soul, or mind, or whatever we want to call this immaterial object. It may be possible that we are nothing more than a very complex body.

Firstly, there is the problem of the mind. Let's accept that the mind and body are two different objects, one immaterial and the other a material object. What does it mean for me to be me? Or a more important question yet, how do I know that the person that will exist tomorrow is me, the same person that thinks right now? The concept of personal identity is strongly linked with the concept of death, as what we care about when we speak of death is the survival of the self. We don't really care if some person having the same body survives if that person doesn't remember anything of my life.

Many books explore this idea starting from all available theories, from mind theory and body theory, and they illustrate all the possible issues of the self in every available theory. The conclusion is we don't have a clear answer. This is how we explain the multiple available hypotheses. Neither of them is valid but all of them are best at explaining something in the right way.

One issue regarding the continuity of the mind in personal identity is the immortality problem. If one manages to live for 900 years, for example, how do we know she is the same person after 900 years? Human minds are easily changed, we experienced so many things in our short life span and we changed our personality both gradually, and sometimes, unexpectedly, that it is difficult to say that we will care about what kind of person we will become in 900 years. Even though we will continue to exist, will we really care? If the 900 years old person has completely changed his values compared to who we are at the present (and maybe he even accepted some facts that I right now consider revolting), even if we are the same person, do we really want to be that person?

We can easily solve this problem in the eventuality AI will be created. For one, if an AI exists (and I am talking here about a superintelligence, in one way or another), we will solve the problem of personal identity. An AI would be able to tell us what general personal identity is. What will follow is probably,

the application of the general personal identity to every species, including humans, AI, or even other species. Like any scientific law, a general principle needs to be able to explain a variety of specific instances in order to be a valid explanation of a phenomenon.

But for now, let's assume the AI cannot tell us what personal identity is. Worse, this AI struggles to understand its own identity. The AI can live for a long time and can remember every moment of its existence. Even if the AI would live for 3000 years, it will be the same person, no matter if it improves its routines and algorithms.

Ann Leckie [64] proposed a *game as experience* under the shape of a novel that explores among other things the personal identity in the case of an AI (and even in the case of some humans) as a collective identity. In *Ancillary Justice*, an AI has access to human bodies, but these human bodies are nothing but empty shells, easily discarded if needed. Nevertheless, the body is still able to feel emotions, but the AI mind will regulate and take care of every need the body would feel. When the AI takes over the body it destroys the mind and replaces it with a small part of the controlling AI. We have no problem thinking that the personal identity of the body is gone, in this case. The bodies controlled by the AI as part of the starship crew are called by numbers, not by name.

But what happens if the ship is destroyed and only one human body with the AI mind survives? Who survives? The AI? The human body? A new person? The AI would continue to claim that it's the only one that survived, but it discovers that having only one body is not the same as having multiple bodies. And nobody thinks that a shipless AI is a true ship anymore; even the AI computational capacity is limited inside only one human body. Neither the real AI body, neither the real mind of this AI survived, yet it still claims it is the same AI person as before. Could this be a case of delusion? We have no problem dismissing the people who claim to be Napoleon Bonaparte as delusional and we don't even think of them as the same person. The reason is there is a missing continuity of both brain and mind. But in the case of the aforementioned AI, there is a weak continuity. It's the same continuity as when we talk about destroying the whole body except a small part of the brain and then we build a new body for this brain. Sometimes, we consider the person that remains the same person, sometimes not. It usually depends on how much continuity of memory exists. I think if the person surviving can remember who she is and some essential information about her, while she forgets irrelevant details of her life, we can talk about the same person.

But what happens if we don't destroy the person? If we somehow separate the brain in 2 and clone the body and both resulting people claim they are the same person? Are they the same person?

Some visual media and literary works offer a structure resembling a video game. They have mysteries to be unlocked, a progression through missions, and questions for the readers. The most famous example is the *Lost* TV series that offered a gradual exploration of the adventures of some survivors trapped on

a mysterious island. It is literally a video game translated on the small screen, but without any reference to the virtual world.

On the other hand, books like Ann Leckie's don't necessarily have the structure of a video game but they invite us to explore, to put ourselves in the character's shoes and answer the questions they cannot. While this can be said for many stories, only a few manage to be interactive in the sense that they require more than passive participation. They pose the questions and present a playground but they don't give us the final answers. This is what it means to be a *game as experience* in the absence of the digital medium.

Next, we turn our attention towards an actual video game that explores the issue of personal identity.

In SOMA [15], a sci-fi horror game, we have the chance to live this. We start as Simon, who has advanced brain damage from a car crash. He only has a few months to live, at best. A prototype of a brain scanner exists, and the researchers ask Simon to participate in order to try to better understand the brain damage and save his life. Simon sits in the scanning device and…

...wakes up in a deserted underwater facility 100 years later. He explores the new location, scared and lonely. After he learns he is just a copy (but he doesn't feel any different), later he is forced to transfer his mind again to a new body. This time, he wakes up in the same time period. The old body still exists with his mind still there. After all, the scanner can just copy minds, not transfer the old ones to new bodies. This time, Simon has a choice to make, kill the old self to make sure he is the only surviving copy, or let the old self live, trapped alone in a deserted facility, where he will maybe go insane.

An interesting problem here is that the game automatically makes the player experience the mind of the specific copy of Simon that can move forward, not of the one that is left behind. But at the same time, it makes it clear that you could have easily been the other Simon.

While in the philosophy literature, this reduplication issue is not something new, the ability of virtual games to capture the essence and the visceral existential terror of the reduplication problem is groundbreaking. It is one thing to think about existential issues and another thing to experience them. Can you deal with the fact that even though everything still feels like yourself, you are not the same person, but just a copy? The game offers some hints that people before, who scanned their brain, couldn't cope with the existence of another self and killed themselves to make sure only one version of themselves exist at the time and so ensure the survival of their personal identity. That is because one of the solutions to the reduplication issue is that if two copies exist, neither one of them is the original person. The original person died when the copies were created. In case one of them suffers a misfortune, and only one copy survives the separation, then there is no reduplication problem to speak of.

If brain uploading becomes a reality, how will that affect us? In this case, immortality is a scary thought. But it makes us ask another important question. Is personal identity equivalent to humanity? Or stated another way, is personal identity limited to one form at one time? It's not easy to answer this question.

If we follow the mind, and if we accept that personal identity is part of the personality continuity, then the personal identity can transcend forms if and only if we can transfer the consciousness to another form, without copying it. The moment we make a copy, the original person dies and it's replaced by 2 other persons of different forms.

If we follow the body, and if we accept that the personal identity is the whole body and the complex chemical reactions taking place here, then it's impossible for the personal identity to transcend forms.

So, either personal identity is immaterial, composed of "a set of rules and algorithms" that can be transferred and copied over and over, or personal identity appears because of material (physicochemical) processes in our body or our brains that cannot be replicated in another substrate.

It's easy to think that once we build an AI, we would also obtain the answer to the personal identity problem. But it may turn out the AI we are building is totally alien, a new species with different rules and thinking than the human counterpart. And the problem of AI splits in two. Either we are trying to replicate the human mind on a silicon substrate or we are trying to create a new type of non-human intelligence. In the latter case, the AI will have its own dilemma about what constitutes a person. It turns out this is one of the most important issues in building an AI, maybe even bigger than the problem of creation.

We have to make sure the AI will include humans as persons, too. It's easy to dismiss this problem and focus on the control problem and treat the AI as a powerful tool with a fixed agenda, but I think it makes a big difference between being treated as a person and being treated as another thing. There have been discussions about whether some animals can be considered persons or not. So far, we have not paid enough attention to this issue. The result is that while we think animals' lives are important, they are always in second place. Even considering the issue of wildlife conservation, we don't consider animals as having the right to live, but we think that we as humans have a duty to preserve them. The AI may eventually think the same, that humans are not persons, but it has a duty to protect them (as in a human species conservation program).

The problem of AI is intrinsically tied up with the *game as experience*. In order to create an immersive new reality, we need the power of AI that can create new things with the press of the button, even if the new things are just virtual in nature.

In a world where everything is automated, people can find themselves with too much time on their hands. And while this sounds like an ideal reality, the sad reality is that the majority of people strongly

associate their identity with their jobs. Because the education in using the new technologies to improve our lifestyle is lacking, it's more than likely to have the technology available before we are mentally prepared for the changes that it will bring.

In a world that lacks true meaning, many people may try to find their meaning in a digital virtual world. This virtual reality may even act as a gateway to better communication with the AI because we, as people, connect better with other people that have a body and are not simply a stream of data.

The best representation of a virtual world (that I know) is the virtual reality depicted in "Ready Player One", the book by Ernest Cline [65]. The world described by Cline is not a utopia. In fact, it's the furthest thing away. There are greedy corporations, humans living in sheer poverty, totalitarian governments, etc. But virtual reality takes this all away and provides a reality where everyone is equal (more or less, because access to the virtual world depends on your real life). Equality is not provided by giving everyone the same situation, but quite the opposite, allowing everyone to build the desired version of themselves. It doesn't mean everyone will be perfect because even the human notion of perfection doesn't truly exist. It fluctuates from person to person. As an extreme analogy, in this virtual world, a rich kid would want to experience life as a beggar, and this is what his identity will be, as much as we are concerned.

I would argue that this type of immersive virtual world with unlimited choices can only be created by an AI that has the potential to adapt the experience to every one of its users.

With access to this kind of world, would we shape our virtual reality by our personal identity? While we tend to believe that our personal identity is linked to our mind, in some way or another, the most notable way in which we express this identity is through our appearance. That is why the most successful MMO worlds have a myriad of options for customization.

Starting from this point, at the intersection between personal identity, avatar identity, and AI, I wanted to explore meaningful choices in creating an avatar. While the avatar in a virtual world is so far limited by the type and background of the story the virtual reality wants to express, the VR chat room (VRChat) [66] proved that as avatar identity is concerned, you can be anyone and anything, which gives a new meaning to the freedom of avatar creation. Nevertheless, VRChat is just a social platform and most of the users use it in the same way we use filters during video calls, as a fun way to augment the chatting experience. What's more troublesome is that instead of exploring identity questions, most users use it as a platform to express their aspects of personality kept in check by society rules (online bullying, child predators). Despite this, I see this system as a proto-virtual world, because it's a growing world to experiment with virtual reality technologies, such as body tracking and haptic feedback.

Why all these stories (books, movies, games) deal with both the personal identity theme and the AI, in one form or another? Why every time we tell stories of possible AIs, we start asking ourselves if that software has consciousness? Why do we put AI in stories about personal identity, as a mirror to human identity? Is it because a question so long unanswered found a companion in a promising technology? We can answer a lot of difficult questions when we ask them in plain format, available to everyone, with different backgrounds and education.

In the next part, I will present my own take on the personal and avatar problem devised under the shape of a *game as experience*, a selector of choices that tries to ask "Who are you and who do you want to be?"

3.2.2. Realms of Playcraft

Goal

This project is a proto concept of analyzing the identities of players in online worlds. The existing online worlds, from Facebook to MMOs, can be regarded as incipient versions of eventually a larger virtual reality where people can assume a new identity (or even the same identity) and live second lives, far away from the demands of reality. In some cases, virtual reality can become the primary reality, as it already happened to players of Second Life [67]. Some people took full-time jobs in the game because one of the currencies corresponds to real-world currency.

Analyzing avatar identity, we can learn more about the people and about the concept itself. As in real life, in virtual worlds, some people's identities are easily changed from day to day, while others cling to one type for years and years. We can regard the avatar identity as separate from the personal identity or we can regard the avatar identity as an extension of the personal identity. The former case happens when players engage in role-playing and continue to do so for a long period of time. In this case, the user switches between his personal identity and avatar identity when entering the virtual world. The latter case involves players hiding behind a new persona and exhibiting repressed behaviors or expanding their identity to fit the new rules of the virtual world. They can have the same identity but at the same time acquire superlative personality traits. For example, they can be better, kinder, crueler, funnier, angrier, etc.

We can try to look the same way at the single-player games but in the reported cases, the players don't identify with the characters in the same way online players do. In single-player story-driven games, the player is reported to feel like an over-the-shoulder viewer of the action. She can feel empathy for the characters in the same way she feels for the characters in a movie. She is an active participant but without experiencing a switch or an expansion of identity [68].

While I am positive the companies use the players' profiles to gather data about their clients, their interest lies in the economic side and more specifically, in player retention and spending capacity. Nevertheless, this kind of data can be used for anthropological studies as well, regarding the creation of cultures and communities in virtual worlds, where people that would never collaborate in real life (because of personality traits, not because of location) can find a common goal. The research can be expanded to study human interactions with technology or even more, human interactions with the environment. Why certain virtual worlds encourage cooperation while others reward aggression? Why do some people decide to cooperate in an otherwise hostile environment for groups? Or the opposite? The research can be expanded to include real-life identity, or it can be contained in the virtual world, treating avatars as self-contained identities.

The project was just a concept, because I only developed a rudimentary character creation that doesn't account for further identity developments in interaction with the environment (and identity continuity), though I tried to incorporate some ideas of the potential identity influences.

Development

Early in the conceptual stage, the character creator's complexity was higher, with multiple perks available only if some previous conditions were satisfied, as well as more available skills. The motivation was to create almost an unlimited choice simulator because our identities are complex and also, there is the problem of survival. If another character the same as mine exists, and my character dies, does it matter, as long as another identical character still exists? Of course, death in virtual reality is just a minor inconvenience that can actually be treated as part of the personal identity. Still, survival is an important limiting factor for one's identity.

In the end, the Character Creator app was developed using JavaScript under the Phaser 3 game framework. To store the user's choices, instead of using a survey, I created a MongoDB database (at mongodb.com) and put everything together in the Heroku cloud computing platform (heroku.com). To run the application, the only requirement is an internet browser, preferably Google Chrome (development and testing were made only on Chrome and Internet Edge).

Stylistically, the concept derives from standard fantasy games but with a dose of Fallout-style humor, to keep players engaged. The other element inspired by Fallout [69] games is the attributes points stored under the acronym S.P.E.C.I.A.L. (Strength. Perception. Endurance. Charisma. Intelligence. Agility. Luck)

In the end, there are at least 72,000 possible character choices, excluding the multiple-choice options (S.P.E.C.I.A.L. attributes and negative perks). Regardless, this amount cannot be considered an unlimited number of choices.

Final Concept and Results

Name. The name is not chosen randomly. I wanted to create a sense of scale using the word “realms”, and “playcraft” is a derivative from the most popular MMO: “World of Warcraft” [70], which is already 17 years old, but it still manages to attract new audiences.

During one week of sharing the app on Facebook groups UISO and 잉력시장, I recorded 48 database entry. Out of 48 entries, only 27 were valid, meaning they recorded full answers. What follows is an analysis of the valid answers. Because the sample data is too small to characterize the whole UNIST campus, I will refrain from generalizing. Nevertheless, I think the data can be regarded as characteristic of the active online participants of the 2 groups, willing to engage in an English online survey.

Race. The motivation for including racial attributes is double. On one hand, it explores racial problems, as modern video game tends to use race to explore diversity and racism. By being subjected to a diverse cast, players should be able to get a sense of empathy for other races. On the other hand, it has been proven that players want to assume different racial and gender identities in virtual worlds. Not surprisingly, the dominant choice for the race was humans. Even if it is possible to see the “weirdest” avatar in a virtual world, on average, people will choose their alternative identity as close as possible to who they already are. In one way, the factors that define our identity are not chosen by us but modeled by genetic and environmental factors.

Figure 8. Realms of Playcraft race panel (left) and results (right)

Body type. While we don’t usually relate our personal identity to our bodies, I think unconsciously we do. There are stories that when a person changed her body, her confidence increases, while the reverse is also true. If one’s identity is tied up too tightly with her body, no matter what changes occur, the identity will stay connected to the old body type. In the virtual world, the body is the only visible manifestation of an avatar, therefore, it’s one of the important aspects of the avatar identity. The same

bias (as in the previous selection) appears in choosing the body type. The ideal character is slim, which can come from environmental factors in real life. If the virtual world proved to be inhospitable to slim characters, the major choice may move towards another option. As long as socio-cultural factors are in play, any virtual world will be a deformed alternative to reality.

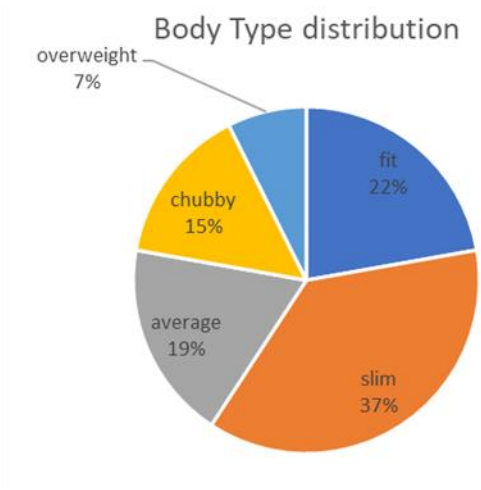

Figure 9. Body type panel (left) and results (right)

Gender. Gender was a problematic choice because, on one hand, there are already too many discussions on gender identity in the real world that shouldn't interfere with the identity in the virtual world. In a virtual world, one can choose directly the same gender that corresponds to the sex of the body and get rid of all the gender identity issues that arise in the real world. Therefore, the choices I presented are combinations of the biological genders existing in humans (more or less). Regarding the results, as long as I don't have the participant's personal information, I can only make an educated guess. Either most online users who played the game are males and also want to be males in the virtual world, or being a male is a preferred choice among all participants. Again, this may be due to socio-cultural factors affecting real life.

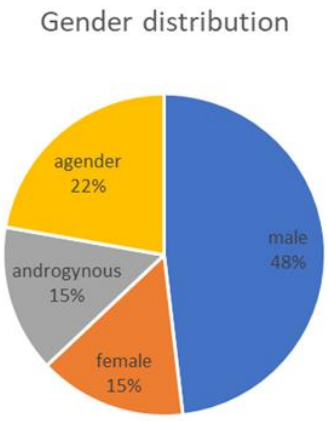

Figure 10. Gender panel (left) and results (right)

Ancestors' environment. By the ancestors' environment choice, I wanted to illustrate the genetic background. Genetically, the human species doesn't contain different races but some genetic variations. Hence, in The Realm of Playcraft, the race corresponds to the species, and ancestors' environment provides the genetic variations among members of the same species (ethnicity). *Forests and Mountains* gained a surprising number of followers. One of the major reasons may have to do with the location of UNIST in a remote mountain area, so the majority of members either developed or already had a preference for this type of environment.

Figure 11. Ancestors' environment panel (left) and results (right)

Augmentation. As we are in the incipient stages of altering our own body, I believe this part will become more and more important in personal identity. So, it's normal to want to alter our original form even in virtual worlds. This can open new opportunities to diverge from a common point and create a more diverse cast of characters and thus, identities. Surprisingly given the small data sample, all options were chosen in an equal amount. My only guess is that as we move from tangible characteristics, the participants are freed from the limitations of their real-life personal identity.

Figure 12. Augmentation panel (left) and results (right)

Attributes and perks. I will skip the discussion for the next 2 panels present in the app because they only serve to give a bit more diversity in choices, and also create a dilemma for the player. Her avatar will also have flaws. Will she be okay with flaws in virtual reality? It turns out only 4 users out of 27 chose a perfect character (~15%).

Class and Skill. The class is based on the SPECIAL attributes selected earlier and has the role to gently nudge the player into a community. In case the player creates a character that doesn't excel at anything but it's able to do everything moderately good, they have the option to go classless, which can also be categorized as a community. Following this selection, the player is faced with another choice, that varies depending on the class. Each class has different training, as each career has its narrow skills and interests. In this, I didn't mean to limit the player, as when the time comes, he can learn many new skills, but the avatar identity, as it's concerned here, is all about the most essential part of a character. The class and skills act in the same way as a philosophy professor who has based his identity on being a philosophy professor, while he can also have an interest in physics. (Of course, the career is not the perfect analogy. Someone can base his whole identity on being a father, and the career is just a means to an end). The results speak for themselves again. A large percentage of players chose Scholar as their class (63%) and Engineer as their skill type (29%), not surprisingly given the UNIST environment.

For a complete view of the user data and the distributions of skills and classes, see **Appendix D**.

Profession. Lastly, the professional choice acts as an even further specialization but it's not as important as the previous choices, hence it's the last one the player has to make. Even in real life, while the majority of us used to base the identity on our jobs, now it's no longer the case. It's not as important what you do, but what you would be able to do. We don't join a virtual reality to get more work, but to escape work and become what we truly want to be. So while the previous panels represented the core of the identity, the profession panel acts as a minor interest. Another unexpected result appeared here. While all other professions were represented rather equally, the gathering profession had zero followers. One reason may be that due to the lower intellectual challenge compared to the other profession, the gathering profession was not an appealing choice for the UNIST community.

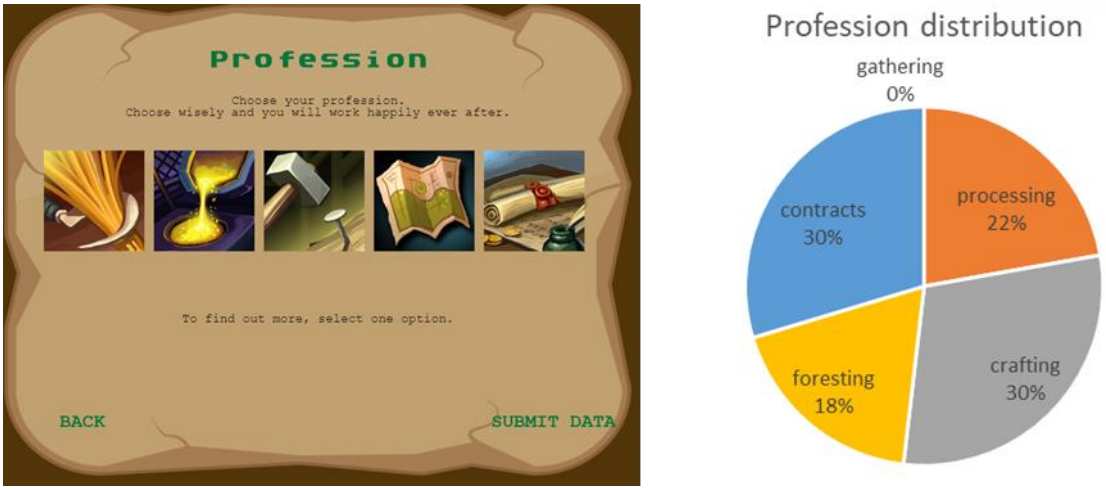

Figure 13. Professions panel (left) and results (right)

Even in reporting the results of the choices, the profession is not part of the core identity but it is what the player does, followed by the core characteristics: the role (purpose), gender, augmentation, body type, and genetic background (a combination of race and ancestors' environment).

Figure 14. Revealing the virtual personal identity in Realms of Playcraft

Certain choices overwrite others. One of these choices is the **augmentation** type non-corporeal, which replaces race, body, and gender, for obvious reasons. This choice is equivalent to brain uploading or being an AI created by a certain species. The AI is just a stream of information, but depending on its creators, it can have certain pre-programmed behaviors. I didn't find any correlation between the choice to become non-corporeal and other factors (body type, gender, genetic background). Therefore, I think either the choice was presented without its full implications (lack of body, gender, and genetic variations), either the choice to become non-corporeal has its appeal among all members of the community.

3.3. Your World 2.0 - Gamified activity based on John Rawls' thought experiment

The third project deals with social policies and human-made societies and countries, respectively. Compared to *Realms of Playcraft*, *Your World 2.0* proposes the opposite. Instead of the players expressing their personal identity in the virtual world, they will capitalize on another strength of digital reality, anonymity and almost perfect impartiality. If the *Realms of Playcraft* was focused on the individual, *Your World 2.0* is focused on society formed by many people with different personal identities.

If the other projects would benefit from a stronger AI in their software implementation, the final study case mandates the introduction of AI as supervisor of a digital society, that ensures fast response concerning human decisions.

3.3.1. Towards a just and fair society

The dream of an equal and fair society is not a new concept, being in the mind of philosophers even before Aristotle's times. The reason why it is not yet realizable says a lot about our minds' ability to keep separate the ideal world and the mundane world. Despite this, advances in new technology could bring the ideal world back into focus with strong influences into the real one.

Of course, I am referring to the digital and the virtual. It is not enough for them to exist as an extension of our daily world, but it is necessary to create a virtual world that we can interact with, compare, and learn from. This digital virtual world is, at the moment, inspired by our history and norms of the real world, but we should learn how to use virtual worlds as a means of exploring ethical and moral questions, with ramifications into socio-political issues.

I propose *games as experience* to serve as the basic building block of this virtual world. The more traditional view of "games as a collection of rules" is well-known, but it is insufficient for the exploration of social systems because rules are intrinsically deterministic while social processes are not, containing probabilistic elements of chance that ensure unpredictability in the interaction between agents.

John Rawls asks in his "A Theory of Justice" [71] how to make a fair and just society, and then proceeds to answer by means of a thought experiment called The Original Position.

In this Original Position, rational agents of roughly equal ability decide together the principles of social cooperation, absent any information about their status (class, race, sex, etc.) in the future society they propose. This lack of information is, as Rawls calls it, a thick veil of ignorance, that is necessary to

ensure total impartiality. He understood that what people aim to be (their ideal) and what they are (the concrete) do not always align, and a simple impartial decision is impossible absent a veil of ignorance.

Nevertheless, it should be noted that in his original thought experiment, he claimed that rational people should decide their fate, but as we now know, people are not rational agents described by classical economic theory, but predictably irrational and not a single model is able to capture the diversity of human behavior [72].

If we replace rational self-interested agents with irrational agents as approximately described in behavioral economic theory, we can criticize the conclusions Rawls draws from his experiment. He concludes that the agents will guarantee equal basic rights and liberties of all citizens in order to pursue a range of conceptions of the good, together with a guarantee for fair equality of education and opportunities. Rawls was biased towards the society he was living in, and his critics argue that he tried to justify the political system of the USA of his lifetime. [73].

We cannot guarantee the same conclusions, but that doesn't invalidate the core assumptions of the thought experiment. Agents should be allowed to decide their own fate and a thick veil of ignorance will guarantee impartiality.

I think we all agree that his proposal doesn't have any ground in reality because we cannot choose to have selective memory loss and thus, and the Original Position is only helpful in philosophical discussions. Complete impartiality is an ideal that it's hard to achieve in reality. But soon, the development of VR, AI, and new gamification paradigms will allow the implementation of the thought experiment on a wide scale.

This simply involves the creation of a massively online world where people (players) do not have access to character customization, but instead, they can debate and choose together the socio-political conditions of their world. Following that they will randomly be assigned a role. After a few years game-wise, a committee is again gathered and decides if their conditions were fair and if they would continue using them, or they get the opportunity to improve the society's policies. The world is reset again, and everyone gets new roles. To prevent the rags to riches narrative (very popular in western media) in which players get satisfaction from being challenged, this world will not allow players to develop unrealistically, but instead, it will follow the decided rules of the world. If the committee vote on some class being disadvantaged, they will be systemically disadvantaged, and so the enjoyment of challenge will not last long, though it is possible that players will favor a harsh world, due to the nature of the gameworld and the nature of human rationality.

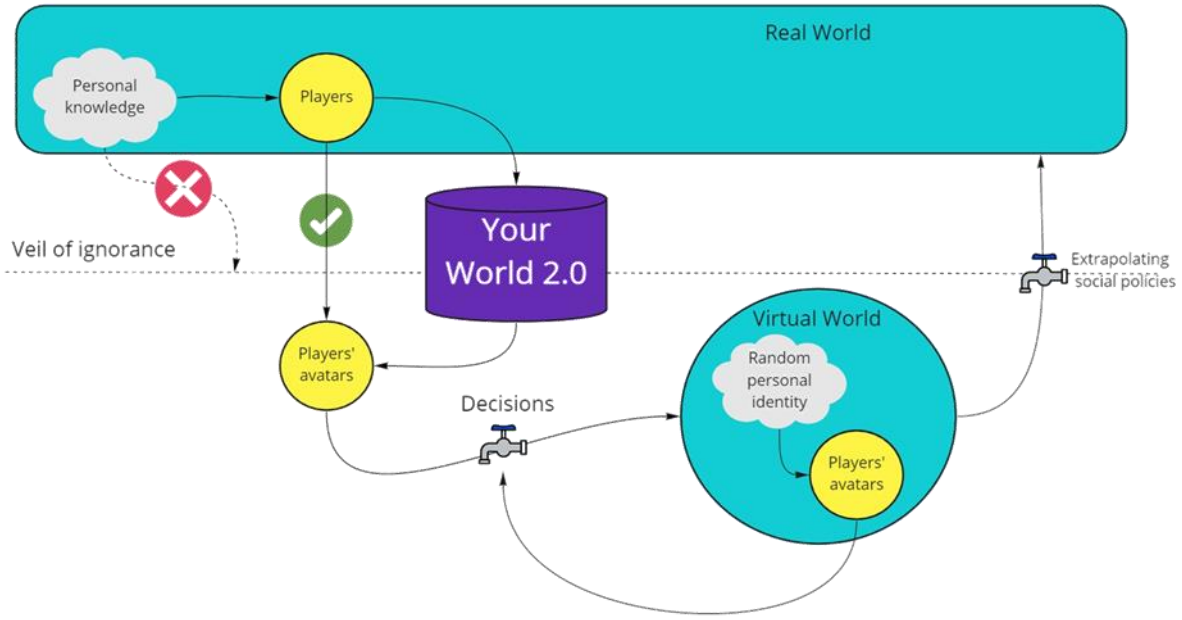

Figure 15. The system model of the interactions in the concept Your World 2.0

3.3.2. Implementation

To implement this project on a small scale, as a prototype of the prototype, I will deploy a design resembling a gamified anonymous decision-making survey. Conceptually, in the final version, as described in the previous section, this project would be a *game as experience*.

I created a smartphone application called *Your World 2.0* using Glide Apps (glideapps.com), which resembles a spreadsheet more than a text-based programming language. Glide is a very new software platform that allows anyone to develop a mobile application with minimal programming knowledge. It relies on standardized application templates and it is powered by spreadsheets, originally Google spreadsheets, but more recently they switched to a native format. Participants' personal information is completely anonymous to others, as well as me.

When we think of video games we mostly think of choosing an avatar and participating in the virtual world activities. *Your World 2.0* resembles the real world because a player cannot choose anything about themselves, any personal information is randomly generated after the first vote (gender, sexual orientation, age, race, nationality, family, social status, career). Periodically the world will go into periods of proposing norms and voting on norms, followed by randomized generation of personal information. In this way, at least with regards to the virtual world, complete impartiality is respected. One cannot vote for his own interests, no matter what. The system completely resets periodically, thus avoiding the trap of success for the successful, that states that in a system, the more resources are allocated to a group, the more that group will develop and will monopolize more resources, while the other groups will tend to have less and less power [74].

This doesn't guarantee that the world created will be an equal one, but my point is not to create a just society (The people playing games are predisposed to enjoy a challenge). The point of the virtual world is to create a self-improving society, with shorter delays in system feedbacks.

From the activities in the virtual game world, hopefully, social scientists can extrapolate policies people would be willing to accept given complete freedom of choice instead of being constrained by their economic social status, loss aversion, and other behavioral and political factors in a world where change comes at a cost.

In developing the app and thinking about the implementation of the thought experiment, I recognized there is a problem in how the vote would proceed. There is a need for a moderator that would make sure the proposals are not similar (or the same but worded differently). A list of many options is indeed a mark of freedom of expression, but it leads to confusion. Even in democratic elections, the choice usually boils down to a couple of different choices, with the problem that sometimes not a single choice is the right one. Solving this problem is a major research study. In the proposed game as experience, this task of sorting and analyzing proposals would be a task for AI software.

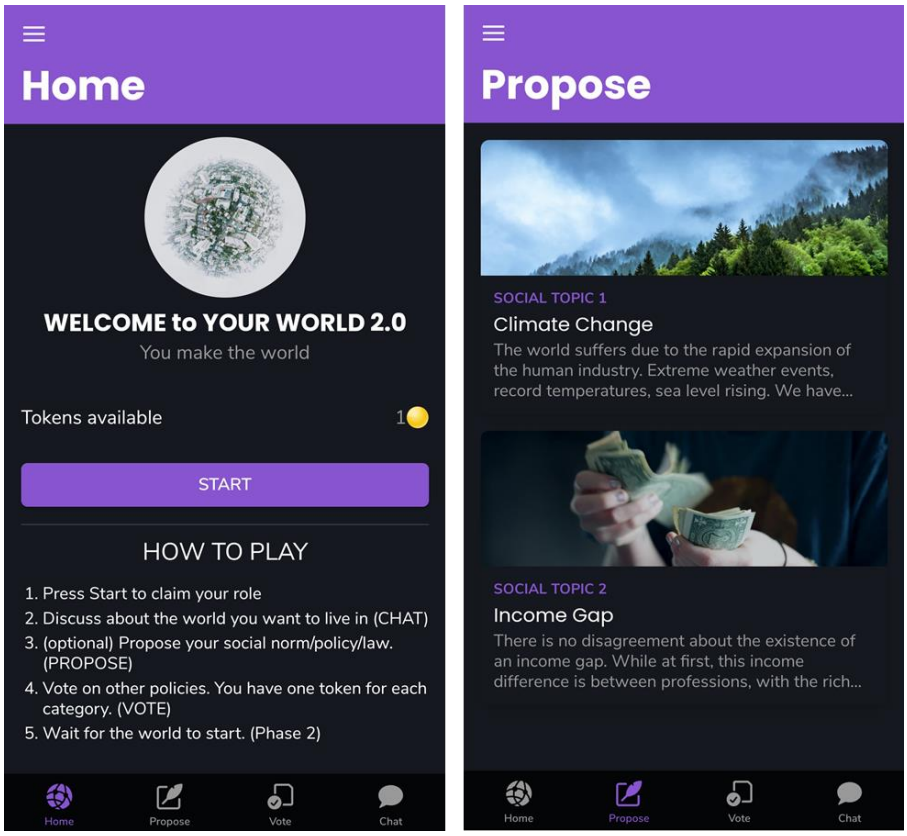

Figure 16. Your World 2.0 mobile app current interface

In the current iteration of the app, there is one condition that participants must follow– to use their imagination. This goes against the veil of ignorance principle, but there is no way at the moment to

immerse people in an alternate reality. While this immersion is sometimes realized through normal computer games, the effect is predicted to be stronger with the advances of virtual reality technology. Thus, imagination is required to imagine worlds and conditions starting from words, not so different from reading a book. Still, the participants will not know their role in the world, until after a decision is made.

The users can vote on two social issues, climate change, and income inequality. These issues were chosen arbitrarily from a list of current social justice issues. I chose to focus on only a few social issues, the major ones being income inequality related to gender, education, race, etc., and the implementation of sustainable practices, because they are intrinsically related, and because a larger implementation in the current iteration would prove to be too complex as well as confusing for users. Thus, the application will only act as a subtask of the Original Position, the goal being to answer the question of the decision-making process through the experiment proposed by John Rawls.

The instructions state that after the first decision, the participants will be randomly allocated to roles. Instead, everyone was allocated to a single role (Fig. 17), decided from their shared decision. The purpose was to show that even the best decisions leave room for errors, and I would expect an improvement in the second phase of the decision-making process. The aim is to study their common reaction and see how they adjust the policy.

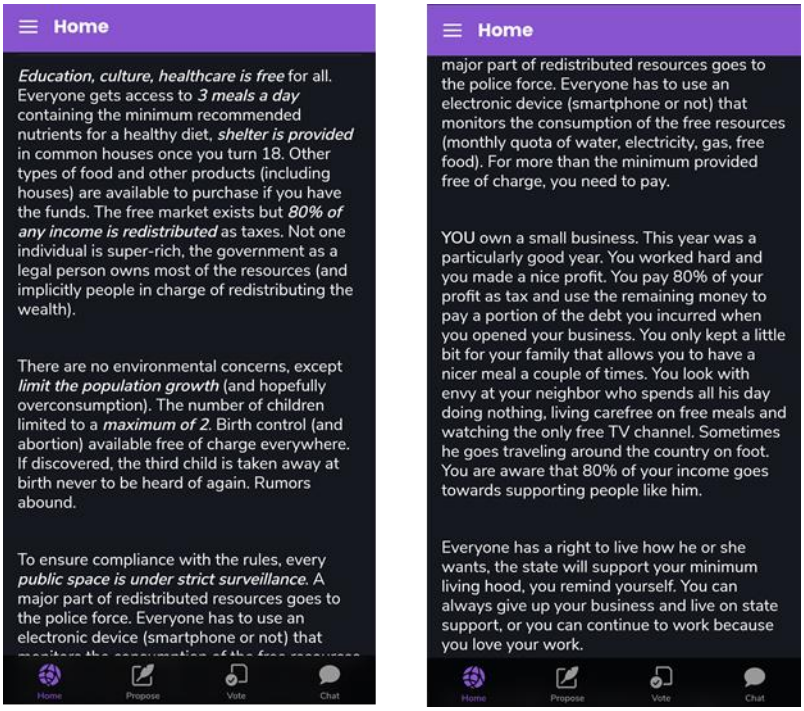

Figure 17. Your World 2.0 Phase 2 - the state of the world after the first decision

The study was conducted in two phases and access to the application was distributed to several online forums: Facebook groups of students belonging to UNIST: UISO and 잉력시장, as well as 4 other groups interested in philosophical discussions (Applied Philosophy, Philosophical Discussions, etc.), and 2 forums dedicated to online surveys exchange. In phase one, the application appears like in Fig. 16, and users had made decisions with respect to their real-world situation. In phase two, the application changed as in Fig. 17 and users should have made decisions based on the state of the virtual world. Unfortunately, participation in the second phase was very low and most of the participants voted for the option to keep the world as it is, even if there were some obvious problems to be remediated. One possible explanation comes from behavioral economics that states that most of the people given several options, prefer to not make a choice but to go with the default option [75].

Given the lack of a default option, the users decided that the status quo must be the default option that requires the least effort. An alternative explanation would be the lack of engagement with a text-based application, which I admit, doesn't instill a burning desire for change. The second option can be easily remediated, as the goal of the project is to show a different perspective for the online worlds, one that can be replicated in full-fledged MMOs.

If the default option proves to be a strong indicator for human behavior, then public opinion will be influenced even in the in-game world scenario by people who pursue change for personal reasons. Fortunately, they would tend to be idealists because they would not be able to improve their own situation without improving the situation of all players (citizens). In this respect, the proposal of John Rawls to gather a committee composed of select members proved to be the correct solution, as most people would approve of any policies currently in effect, as long as that the policies tend to be fair. Only in the event that someone desires change, they would be invited to join a committee. I will repeat myself in saying that this person that desires change would not do it for personal gains, but only because she has seen a way to improve society and wants to propose a solution. In the event that someone would try to change something for personal gains, she would quickly discover that she is no longer in a position to benefits from the aforementioned changes.

3.3.3. Perspectives

Partially, I expanded the veil of ignorance by using people not familiar with the current laws and economic policies. In doing this, this thought experiment becomes an experimental procedure, to be used not only one time, but continuously in order to improve existing policies. I do not propose to reset the world every time a new policy is introduced, but instead, use the continuously resetting digital world as a basis for introducing policy change in the real world.

The *Your World 2.0* project is an instance of the sign of *game as experienc*e and the framework of gamified activities to be used more broadly. Currently, serious games are only used for learning purposes (but not extensively) and as persuasion techniques (people employing them afraid to call them by their "game" name). The reason is twofold. Games are fun and intrinsically not suitable for serious activities. But also, we do not want to transform games into a serious tool, because they will lose their fun meaning. In my view, games are a natural expression of human creativity devoted to problem-solving by reducing the element of risk. They will never lose their fun as people are wired to like problem-solving. But there are also fitting to use in any problem-solving situation because a game is, as I mentioned, a problem-solving mechanism.

I propose to focus on the idea of translating the philosophical idea to modern practice by the use of technology and proper design. The purpose of *Your World 2.0* was not to solve real-world issues but to extrapolate from online virtual social life to social policy and norms. To do that, it is crucial that a game world has its own rules and definition of success as well as different (social) roles players can inhabit. Instead of building a new virtual world, it's easier to think how an existing online world would accept this model of randomized character assignment in connection to the decision-making process concerning world policies.

IV. UNIFIED THEORY OF GAME AS EXPERIENCE (DISCUSSION)

As discussed in **Chapter I**, games are all about challenge, competition, and act as a way of escapism. On the other hand, gamified activities tend to concern themselves with progress and rewards, and act as a way to augment real-world activities, mostly as a way to manage repetitive activities. The *games as experience* will drop the challenge and the artificial progress but will keep the escapism feature belonging to games, as well as the learning capabilities of the gamified activities.

If we compare the activity of engaging in a game/play with the continuum of virtuality (Fig. 18), we can notice that *game as experience* act as the alternative to the concept of mixed reality (MR). Indeed, *games as experience* will benefit the most from the advancements of mixed reality technologies. Nevertheless, their purpose and architecture must be different than either games or gamified activities.

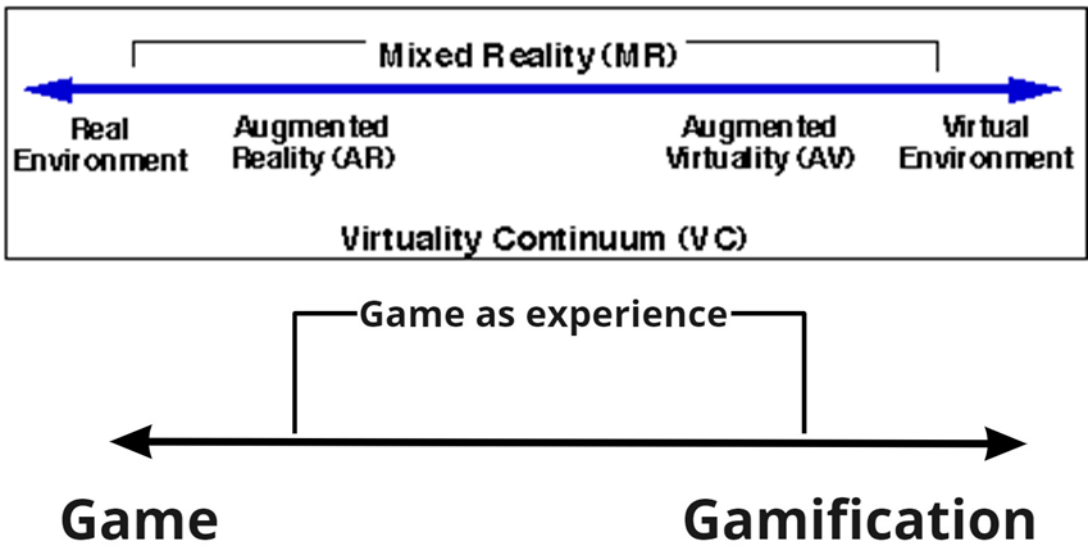

Figure 18. (top) "Virtuality continuum" [76] *(bottom) Game States Continuum*

Regarding the examples discussed in **Chapter II**, *Life with Ggool* was situated very close to the left in the axis in Fig. 18 (bottom), while *Your World 2.0* was positioned slightly to the right, but not very close to a gamified activity.

Because it borrows from two concepts related to play used for different reasons in different situations, *games as experience* will never have a strict classification, but the new digital technologies will allow us to add a third type of experience on the axis of game states, to be used for different purposes than the two already present. It is not a problem of how to do it, but a problem of a new design, predicting the possibilities and capabilities of a widespread interconnected digital world.

I offer next some suggestion in designing *games as experience*.

1) **Immersion.** The main goal in designing a *game as experience* is total immersion. What I mean by immersion is something almost not distinguishable from reality. This can be achieved with technology (VR) or by design. For example, as discussed, making a person part of a thought experiment through audio-visual and haptic feedback, and designing conditions that would not break the illusion of pseudo-reality, is an instance of total immersion. For example, in developing a *game as experience* for language learning, immersion can be achieved by putting a player in a country where she cannot speak the language, with a simple goal of exploring the world and culture.

2) **Decrease feedback delays, if they exist.** The appeal of games lies in their rapid feedback, either received when accomplishing the correct goal or making a grave mistake. By removing the delays between action and feedback, games encourage players to act continuously and receive almost instantaneous responses. The same kind of system should be used in *games as experience*. We are not trying to recreate reality through immersion (see above), but create an experience to be used as a valuable tool.

3) **Personal progression.** Any experience is personal, thus *games as experience* should encourage personal progression, instead of competitive progression. Gamified activities use competition as leverage in motivating people but in doing so, they appeal only to one type of person. Cooperation is a vital part of society as competition is, and I designed *games as experience* to be based exclusively on cooperation. Of course, some types of competition are allowed, such as competing with your past self or limited competition against an AI programmed to lag behind the player, the same way a teacher encourages a student to get better by challenging him gradually.

4) **No winning condition.** A *game as experience* doesn't adhere to the classic definition of a game, where one of the major concerns is "how to win?". The *game as experience* is over whenever a player wishes to be over, or when she considers the experience completed. This is done to prevent perverse incentives of learning activities, where a player doesn't play to learn, but only to win, making use of any available shortcuts.

5) **Lack of external rewards.** The only rewards available would be the intrinsic rewards derived from engaging in the *game as experience*. This design choice is connected to the no winning condition and no competition points. It tries to avoid the wrong incentive of seeking the rewards, instead of the experience. Nevertheless, some types of rewards are available if they are part of the designed experience. In the example of learning a language, the reward would be being able to access additional areas and information, due to an increase in language abilities. In another

instance of *game as experience* used in education, the reward would be being able to access advanced knowledge and/or apply previous notions to solve new problems.

Respecting the previous design choices seems to indicate that elements that create strong engagement in games and gamified activities are removed from the *games as experience*. This is intentional. *Games as experience* don't seek to replace the already existing forms of interactive activities. They will create engagement by the total immersion not broken by levels, points, and social rankings. Their aim is to explore alternatives and new experiences, be it for learning or entertainment purposes. They will not replace available media but instead will depend on other types of paratextual forms of media to enriches the experience.

New games will continue to appear, mostly variants of old concepts and designs, but they will only engage the reward system of the brain. *Games as experience* will act as new ways of having fun but also new ways to explore the world and to think. There are ethical considerations in designing a *game as experience* such as no implementation of any addicting gamification elements and keeping the idea of using games for human benefit.

V. CONCLUSION

We discussed the social influence of play and games, emphasizing the importance and significance of games in culture and society. Recently the trend of gamification evolved alongside digital technology and continues to evolve as more results from behavioral sciences are put into practice. The most popular forms of games in current global society are video games, proving to be an influential media for adults and children alike. Video games are investigated alongside literary text in semiotics studies but they deserve their own place because of the rich potential for meaning creation.

While we know the influence and opportunities provided by games, few attempts have been made of harnessing this potential. In this thesis, I proposed the framework of *games as experience* as a new way of looking at games, not as competitive play, bounded by strict rules but as creators of meanings and experiences.

Some examples were proposed to illustrate the potential of *games as experience* for diverse enterprises. The examples proved that *games as experience* are linked not by genre but by a few design principles and ethical intentions. Their purpose is to link human play with human creativity in order to solve or understand problems, be they abstract and theoretical or factual and concrete.

At the same time, the importance of new technology was highlighted in relation to the potential social impact. *Games as experience* are one way of utilizing future digital technologies in an intentional and ethical manner. They can be used both to showcase the capabilities of new technology as well as recursively to improve this technology.

The most important aspect is the exploration of a new way of thinking and perceiving games which were considered simple leisure activities for centuries. Now, we understand they can have many more meanings. The latest trend was gamification which tried to incorporate game-like ideas into management systems, be they time management or management of educational topics. Their effect is still investigated, but I argue that we should create more signs for games and see where they lead. All the projects inspired by the concept of game can coexist as proven by the fact that centuries-old games are still popular today alongside the latest high-tech video games.

Game as experience is one model in which games can be used outside of management systems, to engage all our senses and assure total immersion in the exploration of various issues. Under what shapes and forms they will be adapted and implemented, only time will tell.

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APPENDIX A

List of in-game items: their cost (Ggool) and their effect

Park: 0; Happiness +5

Gym: 0.5; Happiness +15, Energy-15

Hospital: 20% min 4G; Health = Max, Happiness Boost, Happiness-25

Hospital: 20% less than 4 G; Health = Max, Happiness = 0

"Don't click here": 0; Health-20, Energy-20, Hunger-20, Happiness-20

Cheap Food: 3; Hunger +40

Expensive Food: 5; Hunger+30, Happiness+5

Coffee: 1; Hunger+5, Energy+10

Energy Drink: 1.5; Hunger+5, Energy+15, Happiness-10

Sleep: 0; Energy+2/3 per frame for the duration (replaces decreasing stat)

Any class: 4; Ggool+10, Energy-10, Happiness Boost

Percentage of meeting new people in Park and at the Gym: [(1/number of contacts)*190]%

Percentage of gaining a random amount of Ggool from peers at the end of the day: (50+number of contacts)% to gain Ggool from (random number between 1 and number of contacts/2) people

Happiness Boost = Happiness +2/5 per frame for 10 seconds

APPENDIX B

Survey for the playtest of *Life with Ggool*

Life with Ggool - 꿀맛나는 세상

The purpose of this survey is to gather important anonymous feedback that will be used to improve this game and help us build better tools to enhance your understanding of alternative currencies, universal basic income, fSM and the projects developed by Science Walden.
본 설문 조사를 통해 수집된 익명의 피드백은 게임 및 대체 통화, 보편적 기본 수입, fSM 과 같이 사이언스월든이 개발한 프로젝트에 대한 이해를 향상시키고 이를 개선하는 과정에 사용될 것입니다.

Information about Ggool / 꿀에 대한 정보 : shorturl.at/uPST4

You can also play the Web Browser version at the link below. It requires Google Chrome with WebGL enabled.
아래 링크에서 웹 브라우저 버전을 재생할 수 있습니다. WebGL이 활성화 된 Chrome이 필요합니다.

https://simmer.io/@bogdaan/~14784ee8-ad87-5426-3177-2b88115733b9

Thank you and
Have Fun!

Did you understand the concept of Ggool better after playing this game? 이 게임을 한 후, 꿀의 개념을 더 잘 이해했습니까?

- ○ Yes
- ○ No

Where would you like to spend your Ggool? 꿀을 어디에 쓰시겠습니까?

- ☐ Entertainment facilities (cinema, pc room, concerts) 엔터테인먼트 시설 (시네마, PC 방, 콘서트)
- ☐ Bookstores 서점
- ☐ Clothing stores 옷가게
- ☐ Social clubs 사교 클럽
- ☐ Travel agencies 여행사
- ☐ Other: _____

What would you like to be added to the game? 게임에 무엇을 추가 하시겠습니까?

- [ ] Political parties 정당
- [ ] Environmental issues (alternative energy, etc) 환경 문제 (대체 에너지 등)
- [ ] Social issues (charity service, etc) 사회 문제 (자선 서비스 등)
- [ ] Transportation 교통
- [ ] Story 이야기
- [ ] Random events 랜덤 이벤트
- [ ] Work related activities 업무 관련 활동
- [ ] Other: _____

Did you understand the game mechanics? 게임 메커니즘을 이해했습니까?

- ○ Yes
- ○ No
- ○ Other: _____

How long was your game session? (In-game virtual days or real-time minutes. Please approximate!) 게임 세션이 얼마나 걸립니까? (게임 내 가상 날짜 또는 실제 걸린 시간, 분. 대략적인 내용을 입력하십시오!)

Your answer

Were you bored/confused/frustrated at any point during the game? 게임 중 어느 시점에서 지루하거나 혼란스러웠습니까?

- ○ Yes
- ○ No

If yes, when? 만약 그렇다면 언제?

Your answer

Please write the most fun parts. And the least fun parts. 가장 재미있었던 점을 알려주세요. 그리고 가장 재미없었던 점도 같이 알려주세요.

Your answer

Did you press the "Don't click here button"? :) 버튼을 눌렀습니까? :)

- ○ Yes, I was curious! 네, 궁금해서 눌러봤어요
- ○ No, it said "Don't click" 아니요, 클릭하지 말라고 해서 누르지 않았어요.

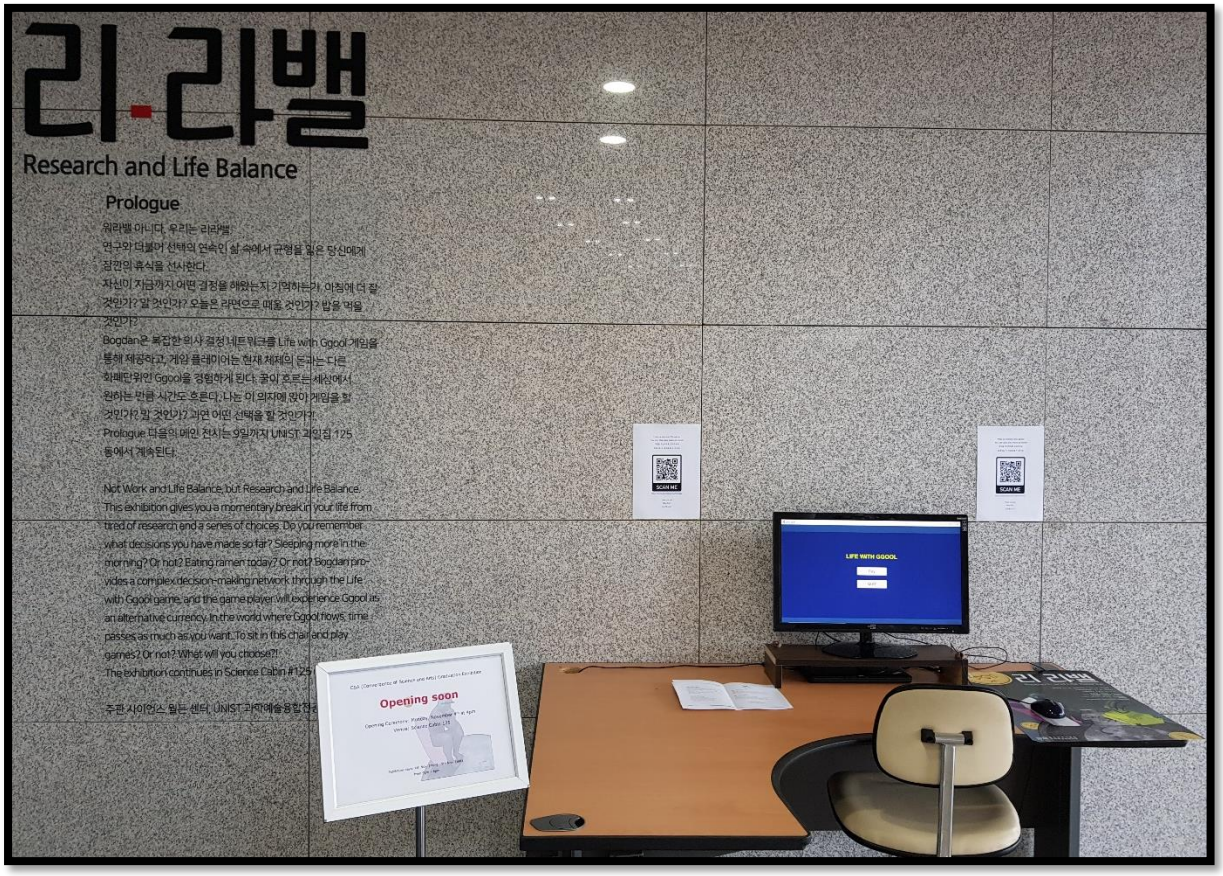
Do you have any suggestions on how to present the alternative currency better? 대체 통화를 더 잘 제시하는 방법에 대한 해결책이 있습니까?

Your answer

APPENDIX C

The prologue of the CSA Graduate Exhibition, November 2020

Not Work and Life Balance, but Research and Life Balance. This exhibition gives you a momentary break in your life from research and a series of choices. Do you remember what decisions have you made so far? Sleeping more in the morning or not? Eating ramen today? Or not? Bogdan provides a complex decision-making network through the Life with Ggool game and the game player will experience Ggool as an alternative currency in the world where Ggool flows, time passes as much as you want. To sit in this chair and play games? Or not? What will you choose? The exhibition continues in Science Cabin #125.



APPENDIX D

User data from the *Realms of Playcraft* and additional statistics

(Table) Realms of Playcraft user data regarding choices

Race	Body	Gender	Ancestor	Augmentation	Stats	Perks	Class	Skill	Profession
h	c	m	f	n	4433768	00100000	s	h	n
e	s	a	f	m	5743x33	00000010	s	h	s
e	f	x	f	c	5653673	01000000	r	r	c
h	a	x	f	p	7381952	00000010	s	e	c
o	o	a	h	m	x2x1219	00100000	w	b	p
e	s	a	f	m	4533x73	00000100	s	i	n
h	s	m	p	n	3956453	01000000	s	h	s
h	a	m	e	p	2225x59	01000000	s	e	n
h	o	f	f	m	11xx535	10000000	w	m	p
h	c	x	h	n	3564773	00000001	r	t	n
o	s	m	p	p	3734x35	00000010	s	e	p
h	a	m	h	n	7076x05	00000010	w	m	s
o	f	m	f	c	70x0x80	00100000	s	i	c
e	s	f	f	c	3438836	01000000	s	i	c
h	a	m	p	n	4754744	10000000	s	h	c
h	f	m	t	n	5555852	00000100	s	e	c
e	s	m	f	p	6264872	00100000	r	p	p
e	f	m	t	m	7576x00	00100001	s	e	n
h	f	f	f	p	x0xx005	01000000	w	m	c
e	s	m	f	p	4735556	10000000	s	e	n
e	c	f	t	m	760066x	01000000	w	m	s
o	s	a	h	n	0x16x17	00001100	s	h	p
o	s	m	t	c	8533844	01011111	w	m	n
o	a	m	e	p	8761436	01000100	w	m	p
h	c	a	e	m	8432783	10000000	s	i	n
h	s	a	f	c	3333x3x	00001000	s	e	c
h	f	x	h	m	5223x3x	01000000	s	e	s

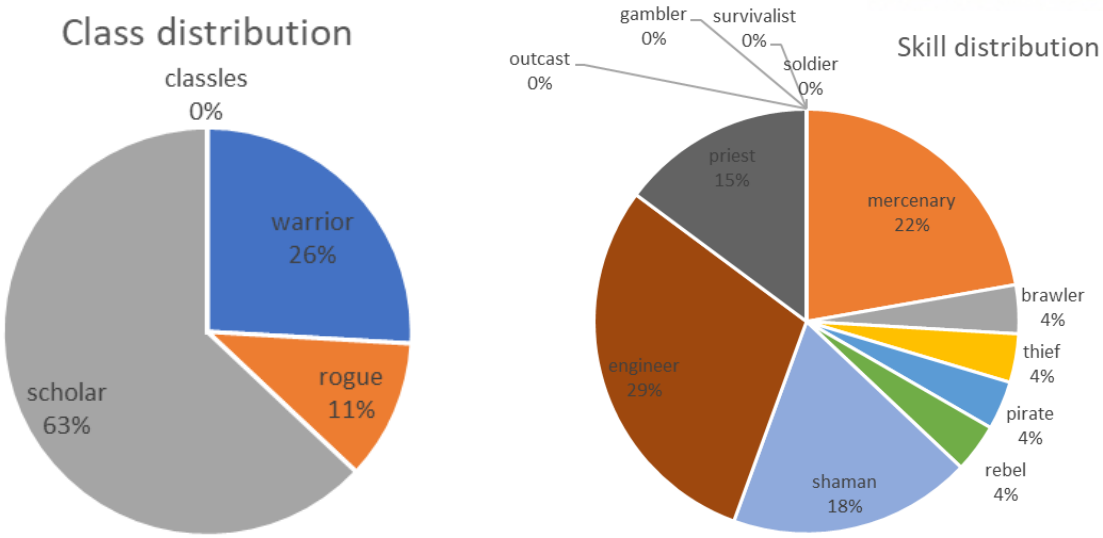


Figure 19. Realms of Playcraft - Class distribution (left) and Skill distribution (right)